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Data for Assessing Access to Health Insurance Coverage in Washington State

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Data for Assessing Access to Health Insurance Coverage in Washington State

Executive Summary

This report provides an assessment of data available for developing a comprehensive understanding of the characteristics and circumstances of Washington State residents without adequate health insurance coverage and for analyzing innovative approaches to improving access to health coverage. The report is presented to the program staff of the Washington State Planning Grant on Access to Health Insurance. It represents the research findings and opinions of the consultant team.

Analysis of health care surveys plays a central role in describing the uninsured population and assessing new policy proposals to help them. The primary focus of this report is on evaluating the accuracy and content of population health care surveys available for analysis of coverage issues in Washington State. Washington sponsors its own survey of this type, the Washington State Population Survey, and surveys with Washington-based samples that are sponsored by the federal government and private foundations are also available. A secondary focus of the report is employer health coverage surveys, which also provide information vital to analysis of health coverage. There are only two sources of such data for Washington, neither of which is under control of the state. Finally, sources of other health resource data are identified in the appendix, but assessment of these sources is beyond the scope of this report.

Approach and Methods

This review examines survey data sources that are designed to provide statistical estimates for the entire Washington household (i.e., non-institutionalized) population and, in the case of employer surveys, for the entire private employer sector in the state. A few major national surveys that do not produce Washington-specific estimates are also included because they provide useful lessons for meeting data needs for Washington.

Survey research is as much art as it is science, and there will always be weaknesses as well as strengths in any survey approach. This report takes stock of the pros and cons of each data source specifically in the context of Washington's health coverage analysis needs. Factors affecting survey accuracy are discussed and the content of each survey is mapped to Washington data needs. Two dimensions of accuracy are evaluated: precision (the margin of error of statistical estimates) and bias (the degree to which estimates can be expected to deviate from population values) are assessed. The report concludes with seven specific recommendations for: 1) which current survey data sources Washington should use, 2) how gaps in the data can be filled in the near term, and 3) what longer-term steps Washington can take to meet its future needs for survey data.

Findings and Conclusions

In total, nine population surveys and two employer surveys are included in the analysis (see table below). However, because of their importance, analysis and recommendations emphasize the Washington State Population Survey (WSPS) and the Current Population Survey (CPS).

The major conclusions of the analysis are:

- The Washington State Population Survey offers the most precise (i.e., lowest margin of statistical error) source of estimates about coverage in Washington as a whole and for sub-state areas. The Current Population Survey, sponsored by the federal government, historically suffered from a lack of precision in state-level estimates. Design changes in the CPS should improve the precision of state estimates in reports starting in 2002.
- All the surveys reviewed have designs that can lead to biased (i.e., systematic deviation from population values) estimates of coverage or other important measures. There are several important probable sources of bias in Current Population Survey estimates of coverage in Washington, but these biases are fairly consistent over time and across states, thus the CPS is valuable for comparing Washington to other states and for examining trends. The design of the WSPS raises concerns about survey bias, but these may be amenable to correction in future waves of the survey (see recommendations below).
- The WSPS measures most of the variables needed for the assessment of health coverage in Washington, but lacks data in some areas. Specifically, no survey provides population-based information at the state level about the duration of uninsured events or events associated with losing coverage. Some data needed for health policy analysis, such as worker shares of employer coverage, can not be easily measured in population surveys. State-level surveys provide only limited information for understanding why some individuals purchase coverage and others do not (e.g., attitudes about coverage and related concepts are generally not measured in state-level surveys). Finally, although the WSPS includes good measures of the characteristics of persons with various types of (or without any) coverage, utilization of health care services and access to care are better measured on other surveys.

Survey Name	Sponsor	Data Years
Population Surveys		
Washington State Population Survey (WSPS)	Washington State	1998, 2000
Current Population Survey – March Supplement (CPS)	Federal	Ongoing
Behavioral Risk Factor Surveillance System (BRFSS)	Federal	1997 forward
Community Tracking Survey (CTS)	Private Foundation	1996, 98, 2000/01
RWJF Family Health Insurance Survey (FHIS)	Private Foundation	1993, 97
National Medical Expenditure Panel Survey - Household Component (MEPS-HC)	Federal	1996, 97, 98
National Health Interview Survey (NHIS)	Federal	Ongoing
National Survey of American Families (NSAF)	Foundation	1997, 99
National Survey of Income and Program Participation (SIPP)	Federal	1990 forward
Employer Surveys		
RWJF Employer Health Insurance Survey (EHIS)	Private Foundation	1993, 97

National Medical Expenditure Panel Survey - Insurance Component (MEPS-IC)	Federal	1996, 97, 98
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Recommendations

1. Washington should use the Washington State Population Survey as its core population survey source for profiling the problem of the uninsured and analyzing policy options; other data sources should be used to fill gaps in the WSPS. The WSPS offers the best balance of survey strengths and weaknesses. In particular, the WSPS offers a large sample for making state and sub-state estimates in a timely way, measures most of the concepts of interest, and does not suffer from some important biases evident in the CPS.
2. The Current Population Survey should be used to benchmark coverage in Washington with levels and trends in other states and the U.S. as a whole. Although the CPS suffers from some important likely biases, it is the only source for making comparisons to other states or over time and the biases will generally not invalidate these comparisons.
3. In the short term, Washington should rely on the RWJF Employer Health Insurance Survey (EHIS) for detailed analyses of employer coverage, but in the future, state analysts should draw upon the Medical Expenditure Panel Survey - Insurance Component (MEPS-IC). The EHIS provides more flexibility and direct data access for analysts in Washington, but its sponsors do not plan to repeat this survey. The MEPS-IC will most likely be conducted in the future, but access is limited. To use MEPS-IC, Washington analysts will have to use tables published by the federal government and submit special requests for additional analyses. Washington state could fund its own employer survey or use the MEPS-IC data center in Maryland; the former is costly, and the latter is logistically difficult.
4. Data from alternative sources should be combined with the WSPS to fill selected gaps in population surveys. This recommendation involves employing statistical matching and imputation methods to import information from program data (e.g., Basic Health plan premiums), employer surveys (e.g., private employer premiums), or other household surveys (e.g., length of current spell of uninsurance).
5. Targeted focus groups or interviews should be conducted with selected populations. Some information cannot be obtained from existing survey data sets. These methods should be used to measure attitudes toward and preferences for public and private coverage, barriers to participation in (individuals) or sponsorship of (employers) coverage, and public and stakeholder opinion of selected new coverage policy options.
6. Consider modifications to future waves of the WSPS to fill selected gaps in survey content. Specifically, WSPS sponsors should consider adding: limited insurance history information, attitudes or preferences that may be related to the decision to acquire health coverage, and questions verifying lack of coverage. If additional resources become available, adding a longitudinal component to the WSPS would provide useful information.
7. Consider modifications to future waves of the WSPS to reduce potential biases from non-response and exclusion of households without telephones. These modifications would be designed to improve the WSPS response rate and reduce potential bias from not reaching households without telephones.

Data for Assessing Access to Health Insurance Coverage in Washington State

Introduction

This report provides an assessment of data available for developing a comprehensive understanding of the characteristics and circumstances of Washington State residents without adequate health insurance coverage and for analyzing innovative approaches to improving access to health coverage. The report is presented to the program staff of the Washington State Planning Grant on Access to Health Insurance. It represents the research findings and opinions of the consultant team.

The primary focus of the report is on general population surveys that are specifically designed to support tracking and analysis of health coverage in Washington, with a secondary focus on statewide employer health coverage surveys. The fragmented way that health coverage is provided in this country makes survey interview data the best source of information for health system description and analysis. As will be discussed throughout the report, however, survey research is as much an art form as a science, and data users need to be aware of both the weaknesses and strengths of available survey sources. Other sources of information can also be helpful for assessing health care access, and an inventory of other useful data describing local health care resources is provided (Appendix A), although these sources are not critiqued or evaluated in this report.

Organization of this Report

This report is organized in four major sections:

- Background—discusses how population and employer surveys are used in health policy analysis in general, and outlines specific health coverage analysis needs in Washington that might be met with survey data.
- Approach to the Review of Survey Data Sources—describes how data sources were selected for review and how the review was conceptualized and conducted.
- Findings of the Survey Review—enumerates the data sources reviewed and presents a detailed assessment of the accuracy (i.e., precision and biases) of survey methods and arrays and discusses the adequacy of topics covered.
- Discussion and Recommendations—summarizes the major conclusions of the analysis and discusses seven specific recommendations for filling data gaps and improving the accuracy of health survey data available to Washington.

More detailed reference material about survey content, supplemental data gathering strategies, and local health care resources data are provided in appendices to the report.

Background

This section provides a general description of how population and employer surveys are used for health policy analysis generally, then specific research questions and issues for which such data are needed in Washington are identified.

Overview of Population and Employer Surveys in Health Policy Analysis

The federal government and others have long relied on national population-based surveys with large samples to generate representative estimates of health coverage and related parameters for the nation. In some cases, national surveys have been designed to provide state-level estimates in all or some states or large metropolitan areas. National surveys are routinely used to generate estimates of employment characteristics, income and poverty, and health insurance coverage for states and metropolitan areas, but other important parameters in health policy analysis, including service use and health status, are generally not available for states from national data collections. In addition, population surveys are generally poor sources of information about the specific provisions of health insurance plans (e.g., premiums and benefits), because household survey respondents simply do not know these details. They are also of only limited usefulness in describing medical conditions or other complex phenomena that might be relevant to health policy analysis.

Employer-based surveys are included in this review in order to fill important gaps left by the population-based surveys. As their name implies, employers, rather than individuals, are respondents in these surveys. Nationally in 1999, 74 percent of people with health insurance were covered through their own or a family member's employer (Current Population Survey, 1999). Thus, for the majority of people with health insurance, employers are the best source of information on types of insurance plans offered, the number of employees offered health insurance by employers, the number of employees enrolled in insurance through employers, health insurance premiums and employee contributions, and employer and worker characteristics (e.g., industry or distribution of wages). Far fewer employer health coverage surveys than population-based surveys are conducted routinely.

With the exception of the National Medical Expenditure Panel Survey, population and employer surveys are generally not linked. That is, samples of households and employers are drawn independent of one another, so information about an individual's employer cannot be linked to that individual's responses for analysis. Linked surveys are complex and very expensive to administer, but they are of tremendous value in understanding complex health insurance choices. For instance, linked data are of value in analyzing policies that differentially target public subsidies to low-wage workers in high- and low-wage firms. No population-employer-linked surveys are available for Washington or any other state.

Most available health-related surveys of households and employers are cross-sectional, that is, taken as snapshots at a point (or period) in time. Repeated cross-sections (such as the Current Population Survey and Washington State Population Survey) are of considerable value in describing and analyzing trends. However, only true longitudinal surveys, where the same respondents are interviewed at intervals over time, can be used to describe the dynamics of coverage and utilization and to identify risk factors for changes in status (e.g., loss of coverage). The National Survey of Income and Program Participation and the National Medical Expenditure Panel Survey, which are discussed below, are the primary sources of longitudinal health

insurance information in the nation. There are no good options for generating true longitudinal coverage estimates for Washington or other states, although some limited sources exist for such estimates.

Application of Survey Data Resources to the Policy Analysis Needs of Washington State

An analysis of data resources must begin by identifying the questions and issues for which the data are needed. Among the aims of Washington's HRSA State Planning Grant are developing profiles of the uninsured population, describing the continuum of coverage and identifying gaps in coverage and options for filling those gaps. Surveys can play important roles in fulfilling each of these aims. Table 1 provides the research questions against which the adequacy of survey resources is assessed. These questions and issues were identified through discussions with the Washington State Planning Grant staff and their Management Oversight Panel. The first seven items in the table relate to profiling the uninsured population, describing the continuum of coverage, and identifying gaps in health coverage. The second six items in the table are the categories of policy options the analysis of which may require survey data resources. The next section describes this report's approach to matching data resources to these descriptive questions and policy options, followed by a presentation of results in which data sources are recommended, data gaps identified and means of filling the gaps described.

Table 1. Research Questions and Policy Options for Analysis

Profiling the Uninsured Population and Describing the Continuum of Coverage	
1.	From where do Washingtonians get their health insurance? Who is enrolled in employment-based, public program, or individual market insurance coverage?
2.	How many and what proportion of Washingtonians are uninsured?
3.	Where do Washington's uninsured live and how are they distributed across the state?
4.	How do income, race/ethnicity, employment status, age, marital status, or household make-up affect the likelihood that a Washingtonian holds health insurance coverage?
5.	What health insurance coverage can Washingtonians afford at different income levels, household sizes and geographic locations?
6.	How long do Washington's uninsured go without coverage? What factors distinguish the long-term and short-term uninsured?
7.	What systemic, perceptual, values- or preference-based processes or decision-making strategies influence Washington's citizens as they elect or do not elect to secure health insurance coverage? How do these factors vary for comparable groups of uninsured and insured citizens?
8.	What are the characteristics of firms that provide employment-based health insurance coverage? What are the characteristics of the workers who receive health insurance coverage from their employers? What are the costs to workers?
9.	How does access to health insurance coverage affect a Washingtonian's ability to access care?
10.	What role does the safety net play in assuring access to care for Washington's uninsured?
11.	How would take-up of coverage change with a change in price? With a change in price and lower benefits?
12.	How many of the uninsured are offered employment-based coverage? At what cost and is this cost affordable?
13.	What are the characteristics of employers that do not offer insurance coverage? What are the characteristics of their uninsured workers?
14.	How many of the uninsured are eligible for COBRA coverage? What factors, including cost, affect willingness to purchase COBRA coverage?
15.	How many of the uninsured are eligible for public programs such as Medicaid, SCHIP, or the BHP? What factors and barriers influence their participation in these programs?
Washington State Policy Options	
1.	Provide new financial incentives for individuals and families to purchase coverage.
2.	Provide new financial incentives for employers to purchase coverage for their employees.

3.	Encourage pooled purchasing of health insurance.
4.	Provide direct provider subsidies for safety net or charity care services.
5.	Enact market and regulatory reforms.
6.	Broaden existing program eligibility and/or financing.

Approach to Review of Survey Data Sources

This section describes how the analysis for this report was carried out. It provides an overview of the analytic approach, lists criteria for selecting data sources for review, and describes the materials and methods of the analysis.

Dimensions of the Survey Review

Nine national or Washington State-specific surveys are assessed in this report for how they can address the research questions and issues identified in the prior section. Dimensions of the review include survey content and survey accuracy. Survey content is comparatively straightforward to assess, as it is a matter of what questions are asked of survey respondents and what estimates can be constructed from those items. Survey accuracy, on the other hand, is more complex and depends on factors that may have effects on the findings that are not always possible to predict.

Groves (1989) defines survey accuracy as consisting of two distinct components: bias and precision. Bias in surveys exists when a survey finding departs in some systematic way from “reality.” In common parlance, the word “bias” can have a nefarious connotation, but this is not necessarily the case in its technical meaning in the field of survey research. To survey methodologists, bias is almost always present and is largely unavoidable. Many biases are small and benign; others may be more serious.

Survey bias may come from many sources. For example, bias can result from small differences in question wording: survey-based ratings of the American health care system are generally more favorable than ratings of the nation’s health care system. Bias can also result from question order effects. For instance, the proportion of survey respondents who report needing but not receiving medical care depends very much on how those questions are asked (Berk, Schur, and Cantor, 1995). Another common source of bias, and one that figures prominently in health insurance surveys, is associated with recall. Personal experience demonstrates that health care and health insurance are complex and not always highly salient. Yet, health care surveys routinely ask respondents to recall the timing of even minor health care encounters or changes in insurance status. Bias may also result from incomplete population coverage (e.g., telephone surveys underestimate characteristics of families without telephones), non-response among persons who refuse to participate in surveys, respondents refusing to answer questions about specific topics, or other sources. Although bias is unavoidable, its presence does not negate the value of surveys in analyzing health care problems and policy options. Some biases are small or can be adjusted for, and trend analysis across repeated surveys that use consistent methods can be of considerable value in accurately describing the direction and magnitude of change even in the presence of some level of bias.

Precision, the second dimension of accuracy, stems from features of survey sampling or from random response error. Surveys rely on probability samples, i.e., subsets of persons (or other entities) in the population selected for interviewing with a known probability of selection. Different samples of the same population will yield somewhat different results. In general, larger samples have smaller margins of error (or greater precision). However, other features of the sample, such as geographic clustering of samples, common to in-person surveys, as well as “over-sampling” (i.e., differential probability of selection among subgroups) also reduce precision. Generally, the precision of the sample is demonstrated through testing of statistical

significance or through expressing statistical confidence intervals. When survey samples are complex, involving clustering or over-sampling, sampling weights and advanced statistical methods are required to estimate significance or confidence intervals.

In this report, we focus on those dimensions of survey content and accuracy that are directly relevant to analysis of health coverage problems and policy as they pertain to the needs of Washington State, rather than delving further into basic survey methodological issues. First, however, we briefly describe ways that population and employer surveys can (and cannot) be helpful in analysis of health coverage issues.

Criteria for Selection of Surveys Reviewed

The first step in the analysis of survey resources is to identify surveys to review. To narrow the field of candidate surveys, specific criteria were applied. First, surveys were included that provide one of three types of estimates:

- Washington-specific and (where possible) sub-state estimates of health insurance coverage and related variables for the entire civilian, non-institutionalized population.
- Washington-specific estimates of health insurance offered and related variables for the entire population of private-sector employers.
- National or multi-state estimates comparable to Washington-specific household or employer populations.

Second, the analysis is limited to surveys that provide estimates that can be trended over time. One-shot surveys are excluded. Although there are no true population-based longitudinal surveys (i.e., where the same households are re-interviewed over time) conducted for Washington State, two national surveys that allow household-level longitudinal analyses are included.

Finally, two surveys are given special focus in this paper because of their importance for policy analysis in Washington: the Washington State Population Survey (WSPS) and the Current Population Survey (CPS). The WSPS is important because it is sponsored by the state of Washington and is conducted expressly to support analyses of health coverage and other issues of importance to the state. The CPS, sponsored by the U.S. Bureau of the Census and Department of Labor, is used nationally to trend health insurance coverage and to compare coverage trends among states. As is discussed in subsequent sections of this report, the CPS has some serious limitations for Washington, but it is the main source for benchmarking coverage among the states and the HRSA State Planning Grant specifically requires that grantees consider its use. The strengths and weaknesses of the WSPS and CPS are contrasted with one another as well as with other sources to identify the best strategies for using these surveys and (in the case of the WSPS) for strengthening data resources available to Washington.

Materials and methods

A systematic search was conducted to identify sources of population and employer survey data that meet the criteria outlined above. The World Wide Web proved valuable. The University of Michigan Interuniversity Consortium for Political and Social Research posts a rich archive of health and social science data (www.icpsr.umich.edu/), and each of the surveys described in this report has its own Web site (or section of a site) where extensive survey documentation is posted. The surveys' own Web sites include detailed methodological commentary, which we reviewed. Other sites, such as the State Health Access Data Assistance Center (SHADAC), provide us with reviews of method-ological issues related to these surveys (<http://www.shadac.umn.edu/>). Relevant research literature on population and employer surveys was also reviewed. References cited are listed at the end of the report, and Appendix B provides

a more comprehensive bibliography of the materials located for this project, organized survey by survey. Finally, to fill gaps in available information, we contacted selected survey sponsors.

Findings of the Survey Review

Surveys Reviewed

Population surveys

The Washington State Population Survey (WSPS) and the Current Population Survey-March Supplement (CPS) provide the core population surveys for our analysis. Additional surveys reviewed include the Behavioral Risk Factor Surveillance System (BRFSS), Community Tracking Study (CTS), Robert Wood Johnson Foundation Family Health Insurance Survey (FHIS), National Medical Expenditure Panel Survey-Household Component (MEPS-HC), National Health Interview Survey (NHIS), National Survey of American Families (NSAF), and the National Survey of Income and Program Participation (SIPP). Table 2 provides a brief overview of the design features of each of these surveys.

A number of surveys were considered for inclusion in the analysis but ultimately excluded. The Washington Workfirst Study (WWFS) is excluded from full review because it only surveys welfare recipients, limiting its generalizability. Other national surveys are not discussed at all, such as the Commonwealth Fund 1999 National Survey of Workers' Health Insurance and Getting Behind the Numbers on Access to Care. Although these surveys provide unique insights into the problem of the uninsured, they are excluded because we do not expect them to be repeated on a regular basis, and they do not provide state-specific estimates.

Many states fund their own population surveys. However, comparing across these surveys is not a reliable way to understand interstate differences because of the tremendous variability in their methodologies. National surveys that can generate state-level estimates use the same methodology in each state; thus, cross-state comparisons from these surveys are preferable. Because of this, the state population surveys of states other than Washington will not be reviewed.

Among the surveys reviewed here, the Washington State Population Survey (WSPS) and the Current Population Survey (CPS) are highlighted, and the other seven surveys are discussed where appropriate. For a number of reasons, the WSPS will be considered the standard against which other surveys will be compared. The WSPS, which is sponsored by the Washington Office of Financial Management, is specifically designed to meet state information needs and includes a large, representative sample. As methodological refinements and improvements are identified, Washington State can modify the WSPS in ways that it simply cannot do for surveys sponsored by others. The WSPS allows for analysis of eight regions within Washington State, permitting an investigation of sub-state differences on all available measures, a feature that is not available on many of the national surveys, including the CPS. Finally, the WSPS has been conducted every two years since 1998, and is likely to continue for many years to come, allowing for examination of statewide and sub-state trends in health insurance coverage.

Table 2. Overview of Population-Based Surveys

Survey Name	Years Conducted (since 1990)	Sponsorship	Survey Design Features	Areas	Periodicity	Over-Sampled Populations	Public Use Data
Washington State Population Survey (WSPS)	1998, 2000, 2002	WA State Office of Financial Management	<ul style="list-style-type: none"> Telephone survey of 6,726 Washington households in 2000; 7,279 Washington households in spring of 1998 Non-institutionalized civilian population 	WA and 8 sub-state areas	Two-year intervals	Racial minority groups	Yes
Current Population Survey (CPS)– March Supplement	1990-on	Bureau of Labor Statistics and U.S. Census Bureau	<ul style="list-style-type: none"> Personal and telephone interviews with 60,000 households nationally (50,000 interviews before July, 2001) Has been conducted for more than 50 years Non-institutionalized civilian population 	U.S., States, MSAs	Annual, each March	Hispanic households	Yes
Behavioral Risk Factor Surveillance System (BRFSS)	1994-present	Centers for Disease Control (CDC), U.S. Dept. of Health and Human Services	<ul style="list-style-type: none"> State managed Number of state stratified samples to allow regional estimates 12,306 telephone monthly interviews with monthly samples for all states (mean for states 237); approximately 150,00 interviews annually Allows examination of monthly trends Representative of households with telephones Non-institutionalized civilian population 	U.S., States, some sub-state areas	Monthly		Yes
Community Tracking Survey (CTS)	Household Surveys: 1996, 1998, 2000-1 data collection currently underway	Center for Studying Health System Change Robert Wood Johnson Foundation (RWJF)	<ul style="list-style-type: none"> Primarily telephone interviews (with some in-person for families without telephones) of about 60,000 individuals in 33,000 families nationally 12 sites randomly selected to serve as case study sites (n=300 each), 58 other communities Families are defined as all individuals in a family that can be covered by a typical private health insurance policy (usually spouses and other dependents less than age 18). Questions were asked about all adults in the family as well as one randomly sampled child Non-institutionalized civilian population 	U.S. and 12 case study areas, including Seattle MSA	Two year intervals	“High need” individuals identified in the first round interview may be over-sampled in longitudinal sample	Yes

Survey Name	Years Conducted (since 1990)	Sponsorship	Survey Design Features	Areas	Periodicity	Over-Sampled Populations	Public Use Data
Robert Wood Johnson Foundation Family Health Insurance Survey (FHIS)	1993, 1997	The Robert Wood Johnson Foundation	<ul style="list-style-type: none"> 1993: Telephone survey (in person interviews for those without telephones) in ten states with a total of 27,000 families 1997: Telephone survey (in person interviews for those without telephones) in WA State only plus a small in-person component 5,322 families completed shorter version of interview, with data on health insurance coverage, employment and income, 2,537 completed full interview Non-institutionalized civilian population for both years 	1993 - 10 states including WA; 1997 WA only	Twice, but the 1997 survey instrument was slightly different	1993 over-sampled uninsured and Medicaid recipients; 1997 over-sampled uninsured, and Medicaid and BHP enrollees	1993 yes. 1997 no. All data are available to WA State.
National Medical Expenditure Panel Survey-Household Component (MEPS-HC)	1996, 1997, 1998	Agency for Healthcare Research and Quality, National Center for Health Statistics/ U.S. Department of Health and Human Services	<ul style="list-style-type: none"> In person interviews Links its components to the National Health Interview Survey, which enhances the analytic capabilities of both surveys 10,500 families and 24,000 individuals nationally Six rounds of interviews over 2 years Linked to survey of employers Non-institutionalized civilian population 	U.S. and regions	Annual	Policy relevant population subgroups, such as functionally impaired adults, children with activity limitations, expected high-cost individuals, expected low-income families, Hispanics and African Americans	Yes
National Health Interview Survey (NHIS)	1990-on; redesign in 1995	National Center for Health Statistics/ U.S. Department of Health and Human Services	<ul style="list-style-type: none"> Continuing national survey utilizing a stratified multi-stage sample design 36,000 to 47,000 households per year, including approximately 106,000 individuals nationally Sample size is too small to support state estimates Non-institutionalized civilian population 	U.S. and regions	Annual	African Americans and Hispanics	Yes

Survey Name	Years Conducted (since 1990)	Sponsorship	Survey Design Features	Areas	Periodicity	Over-Sampled Populations	Public Use Data
National Survey of American Families (NSAF)	1997, 1999	Urban Institute (Assessing the New Federalism) *Consortium of private funders	<ul style="list-style-type: none"> Household telephone surveys Non-telephone households included 13 states and national samples Over 42,000 households yielding information on over 109,000 people across the 13 states 5,757 adults in WA; additional sample of “most knowledgeable adult” for children Non-institutionalized civilian population 	U.S. and 13 states including WA	Two year intervals	Below 200% poverty level (18,000 households – 52% of target sample)	Yes
National Survey of Income and Program Participation (SIPP)	1990-on; redesign in 1996	U.S. Census Bureau	<ul style="list-style-type: none"> Continuous series of national panels 14,000 to 36,700 interviewed households nationally to form nationally representative sample Each respondent is interviewed once every four months for 2.5 years, providing longitudinal data Interviews conducted in person and by telephone All household members 15 and over are interviewed by self-response; proxies are used as needed Non-institutionalized civilian population 	U.S. and regions (limited state est. possible)	Ongoing		Yes

The Current Population Survey-March Supplement (CPS) will also receive particular attention in this report, both because it is the most frequently cited source of national and state uninsurance statistics (State Health Access Data Assistance Center, 2001a) and because the Health Resources and Services Administration requires that it be used as a benchmark (Washington State Office of Financial Management, 2001). The March Supplement is also called the Annual Demographic Survey and includes in-depth measures of income, employment, and health insurance. The federal Bureau of Labor Statistics and the U.S. Census Bureau sponsor the CPS. The Basic Monthly Survey has been conducted for more than 50 years, and the March supplement has been included annually since 1980. Because it includes samples for each state, the CPS can be used to generate Washington-specific estimates. However, the Census Bureau recommends using estimates aggregated over three-year periods to increase reliability of state estimates. This significantly reduces the timeliness and sensitivity of their data, and this advice is often ignored. Finally, the CPS sample is not optimally designed for state estimates. It is primarily an in-person interview survey, which likely strengthens the validity of its measures, but reduces the generalizability of state estimates.

Moving on to surveys that are less central to this analysis, the Behavioral Risk Factor Surveillance System (BRFSS) is sponsored by the Centers for Disease Control (CDC) and can provide state-level and sub-state level estimates of uninsurance for Washington State. The BRFSS is conducted continuously and can provide trend information through comparison of monthly samples. However, the focus of this survey is on health risks rather than health insurance, and the BRFSS measures only limited demographic and other variables that are related to health insurance and, subsequently, of interest here. Importantly, the BRFSS focuses only on adults and lacks vital information about children and families.

The Community Tracking Survey-Household Survey (CTS) is conducted by the Center for Studying Health System Change and sponsored by The Robert Wood Johnson Foundation (RWJF). The CTS has been conducted on a two-year cycle since 1996 and is conducted primarily in 60 communities, although it does support reliable national estimates. The Seattle metro area is one of 12 randomly selected case study sites, so although limited in its ability to generalize to Washington State, the CTS is a source of in-depth data on the Seattle area. In addition to the household survey, the CTS has an insurance follow-back component and companion employer and physician surveys, which could be used to further understand health insurance and access in the Seattle area.

The RWJF Family Health Insurance Survey (FHIS), designed and conducted by the RAND Corporation with funding from The Robert Wood Johnson Foundation, was conducted in Washington in both 1993 and 1997. It is not likely to be conducted again. However, it is included here because its focus was health insurance, it can provide a longitudinal view of health insurance in Washington between 1993 and 1997, and because the FHIS was a forerunner of the WSPS, CTS, and the NSAF (discussed below). FHIS has been used in analyses of Washington State health policy matters. Because of this, the FHIS is a good source of supplemental information about Washington State.

The Medical Expenditures Panel Survey - Household Component (MEPS-HC) is a national survey conducted by the federal Agency for Healthcare Research and Quality (AHRQ). It includes many in-depth questions about household medical expenditures, in addition to detailed items on health insurance coverage and access. MEPS-HC involves a continuous series of national panel surveys in which each household is interviewed six times over the course of two

years. MEPS-HC does not support state-level estimates, but it is included here because it is the only source of all-payer expenditure data, and it provides longitudinal information.

The MEPS-HC is drawn from among respondents to the National Health Interview Study (NHIS), which is conducted by the National Center for Health Statistics (NCHS, <http://www.cdc.gov/nchs/>) at the U.S. Centers for Disease Control. The NHIS has been conducted for almost 50 years, and in recent years has included measures of health insurance coverage. Although its sample is large, confidentiality and sample design considerations preclude use of NHIS for state-level estimates.

The National Survey of American Families (NSAF) was conducted in 1997 and 1999, and is sponsored by the Urban Institute and a consortium of private funders. The focus of this survey is broadly stated as the “well-being of adults and children,” and a number of measures of health care coverage and access are included. The NSAF has a nationally representative sample, in addition to representative samples of 13 states, including Washington. The NSAF over-samples low-income persons, making it suitable for coverage analysis, but its Washington sample is considerably smaller than the WSPS, and its broader purposes limit its focus on health access and coverage.

The last population survey examined, the Survey of Income and Program Participation (SIPP), is a large national panel survey that has been conducted by the U.S. Census Bureau since 1984. As its title implies, it is focused on participation in and eligibility for federal, state, and local programs (including health coverage programs), in addition to income, labor force information, and general demographic information. Although its annual sample is large and state-level identifiers are available on its public use data files, the SIPP was not designed to generate reliable state-level estimates. Because it is a panel survey—each household is interviewed every four months for two and a half years—the SIPP is able to provide a picture of the dynamics of insurance coverage and program participation. Although these analyses are complex, the SIPP can be used to address questions such as “How long is the average spell of uninsurance?” and “How does insurance coverage change as people move in and out of participation in federal programs?” With the exception of the MEPS-HC, no other surveys reviewed here can do this.

Employer surveys

Two large-scale employer surveys focusing on health benefits are available nationally, the Medical Expenditure Panel Survey-Insurance Component (MEPS-IC) and the RWJF Employer Health Insurance Survey (EHIS). Several proprietary employer surveys are available nationally but are not reviewed here. The surveys that are not reviewed do not support state estimates, generally focus mostly on larger employers, and have not generally achieved high response rates, which preclude their usefulness for Washington State policy analyses. Table 3 provides a brief overview of the MEPS-IC and EHIS.

The MEPS-IC and the MEPS-HC are two of four components of the MEPS survey conducted by the AHRQ (the remaining two are the Medical Provider Component and the Nursing Home Component). The Insurance Component includes a large sample of employers drawn from Census Bureau lists and covers health insurance offer and take-up rates of employees, types of plans offered, and employer characteristics. Both public employers (government units) and private employers are included, although their data are reported separately. Because it is not possible to combine the public and private data and the private employers are far more numerous

and employ a greater percentage of the population, this project task considers private sector data exclusively.

Table 3. Overview of Employer-Based Surveys

Survey Name (Code)	Years Conducted (Since 1990)	Sponsorship	Survey Design	Area	Likelihood of study continuing	Periodicity	Data Availability
Robert Wood Johnson Foundation Employer Health Insurance Survey (EHIS)	1993, 1997	The Robert Wood Johnson Foundation	<ul style="list-style-type: none"> Primarily telephone interviews with a national probability sample of private and public employers Samples of private employers selected from Dun's Market Identifiers Excludes self-employed persons with no employees; excludes federal employers in 1993 Data regarding state employees were obtained from each state government Data regarding federal employees taken from U.S. Bureau of Labor Statistics and Office of Personnel Management (1997 only) 1993-For public employers, a sample frame of "purchasing" units constructed based on consultation with state and other government units 1997-Local government sample drawn from the Census of Governments 	1993 - 10 states including WA 1997 – CTS sites, U.S. and several states, including WA	Unlikely	Twice	Data are available on a public access file
Medical Expenditure Panel Survey-Insurance Component (MEPS-IC)	1996 to present	Agency for Healthcare Research and Quality, U.S. Dept. of Health and Human Services	<ul style="list-style-type: none"> For list sample: <ul style="list-style-type: none"> Mail and telephone survey of business establishments and governments nationally Nationally representative sample selected from the Census Bureau lists of business establishments and governmental units and IRS list of self employed persons Follow-back (linked) sample of employers and other insurance providers of MEPS-HC participants Service list of the self-employed 	Yes	Very likely	Annual	Some data are currently available for 1996-1998 studies Data are not available but sponsor provides detailed tables and responds to data requests, resources permitting

The Robert Wood Johnson Foundation Employer Health Insurance Survey (EHIS) has been conducted twice in the last decade, once in 1993 and again in 1997. Funded by the Robert Wood Johnson Foundation and designed by RAND, it sampled private employers selected from Dun's Market Identifiers. Data on public sector employees were collected from local, state, and federal government agencies responsible for purchasing coverage. The 1993 EHIS was designed and conducted along with the population-based FHIS, although employer and population data cannot be linked. The 1997 EHIS was conducted as part of the Community Tracking Study and is a companion of the CTS household and physician survey (but again, these surveys are not linked). In order to enable evaluation of state reforms in Washington and other states, the 1997 EHIS also includes state-representative samples.

The EHIS and MEPS-IC are similar in content, although the EHIS includes more detailed data on the characteristics of workers, which is important for analysis of policies targeting employers of uninsured workers. In addition, while awkward provisions are made by the Census Bureau for outside analysts to submit data requests using the MEPS-IC, these data are not available for public use. The EHIS is publicly available.

Precision and Bias in Population Surveys

All the surveys discussed here vary on important dimensions that can affect bias and precision of estimates of insurance status and other constructs of interest. These issues are particularly important when considering population surveys because of their importance in health policy analysis and because of controversies surrounding population surveys' estimates of the uninsured. In this report, we therefore focus our discussion of precision and bias on population surveys. For example, the CPS is the most commonly cited source of statistics on health insurance coverage, yet it varies greatly from the estimates generated by other sources (State Health Access Data Assistance Center, 2001a; State Health Access Data Assistance Center, 2001b). This is, in part, attributable to the manner in which they ask about health insurance coverage (Nelson and Mills, 2001). The factors discussed here can affect estimates of the uninsured in both predictable and unpredictable ways (Lewis, Ellwood, & Czajka, 1998); this renders a precise explanation of the differences in estimates generated by different surveys extremely difficult. Following is a discussion of the general issues that affect all of the estimates generated by the surveys, followed by a discussion of the usefulness of each survey for answering specific kinds of questions about the uninsured in Washington.

Precision of estimates

The precision of estimates stems from the design and size of a survey sample. Table 4 provides a basic description of sampling design and size for each of the population surveys in this analysis. Each survey relies on one of two sampling strategies, area probability sampling (APS) or random digit dialing (RDD). The large-scale, federally sponsored surveys (CPS, MEPS, and NHIS) rely on APS. In these surveys, interviews are generally conducted in the respondents' homes, and efficiency therefore demands that the respondents be clustered geographically. Often APS sampling takes place in stages, where large areas are selected first, then smaller areas or dwelling units, and finally individual family units or households are selected, with each stage using a systematic randomization process. This method has many advantages; it assures excellent population coverage, as it does not depend on the quality of existing lists or the presence of a telephone, and in-person interviewing generally yields very high response rates and high-quality responses. However, members of the sample within a cluster are generally more similar to one

another than would be the case in non-clustered samples. While bias from such clustering can be eliminated through standard survey weighting strategies, clustering reduces survey precision for a given sample size. Moreover, sampling

Table 4. Factors Affecting the Precision of Survey Estimates: Sample Size and Design

Survey (See key)	Sample design	Sample size	Areas
WSPS	<ul style="list-style-type: none"> • Random digit dialing used to draw general population sample • General population sample is stratified into eight geographic regions (target for each region was 750 respondents) • Supplemental statewide samples of African Americans, Asians, Hispanics, and Native Americans were drawn from Census tracts containing the highest number of these groups 	6,726 households in 2000	WA and 8 sub-state areas
CPS	<ul style="list-style-type: none"> • Multi-stage area-probability sampling • Panel design in which household is interviewed for 4 consecutive months, followed by an 8-month rest period, then interviewed for another four months • Replenish sample each month 	60,000 households nationally (50,000 before July, 2001)	U.S., WA, other states (pooling years is recommended)
BRFSS	<ul style="list-style-type: none"> • Random digit dialing • Sampling strategy varies slightly from state to state 	<p>More than 150,000 interviews annually nationally in 1998</p> <p>In 2000, 3,584 interviews were conducted for WA</p>	U.S., WA, other states
CTS	<ul style="list-style-type: none"> • Random digit dialing • Includes a supplemental in-person sample to represent households without telephones • Nationally representative cross-sectional survey • Data are collected in 60 randomly selected communities nationwide • Twelve communities are selected to be case-study areas, including Seattle, WA 	Nearly 33,000 families and over 60,000 individuals	U.S. and 12 case study areas, including Seattle MSA
FHIS	<ul style="list-style-type: none"> • Random digit dialing • Supplemented by Medicaid and BHP enrollee list samples • RDD sample was stratified based on geography and health insurance coverage, and uninsured were over-sampled • Included area probability sampling for non-phone households 	<p>Part 1: 5,322 families and 11,475 persons</p> <p>Part 2: 2,537 families and 5,871 persons</p>	1993 covered 10 states including WA; 1997 covered only WA

Survey (See key)	Sample design	Sample size	Areas
MEPS-HC	<ul style="list-style-type: none"> Multi-stage area probability sample Rotating panel design; preliminary contact followed by six rounds of interviews over a 2-1/2 year period New series launched each year to provide overlapping panels 	Between 8,000 and 10,000 households per panel Every 5 years the sample size is increased	U.S. and regions
NHIS	<ul style="list-style-type: none"> Multi-stage area probability sample 	Approximately 43,000 households and 106,000 individuals	U.S. and regions
NSAF	<ul style="list-style-type: none"> Random digit dialing Included area probability sample of households without telephones 	In 1999, 42,000 households and more than 109,000 non-elderly (aged 0-64)	U.S. and 13 states including WA
SIPP	<ul style="list-style-type: none"> Multi-stage area probability sample The duration of each panel ranges from 2-1/2 to 4 years 	14,000 to 36,700 interviewed households	U.S. and regions (limited state est. possible)

strategies in national surveys are generally designed to represent large areas (e.g., regions of the nation) and not individual states. Thus, even though these surveys may have large samples in a given state, the design is not optimized to represent states per se, potentially leading to bias in state-level estimates.

Random digit dialing is the sampling methodology of choice for most of the other population health surveys analyzed here. Under RDD, telephone numbers are selected through systematic random sampling. This generates a geographically dispersed sample, which maximizes precision for a given sample size. However, some households do not have telephones, and response rates are generally lower when respondents are approached by telephone.

Some surveys, such as the FHIS, supplement RDD with samples drawn from lists, such as Medicaid or Basic Health enrollment files. This is an efficient way of over-sampling comparatively rare sub-populations. To over-sample sub-populations for which lists are not available, brief screener interviews are generally conducted and eligible households are selected for full interviewing. For a given sample size, over-sampling can reduce precision somewhat, but it enhances analysts' ability to study rare subgroups. Over-sampling of high-variability groups relative to low-variability groups can also increase precision.

Finally, whether APS or RDD, sample stratification is often used to ensure broad representation across geographic regions or other strata. As long as members of each stratum have the same probability of selection (i.e., there is no over-sampling), stratification does not reduce precision even as it assures that a sample is representative.

These sampling considerations have significant implications for analysis of population data for Washington. Although the national surveys have larger sample sizes overall, the WSPS has the largest Washington-specific sample, with approximately 7,000 respondents. WSPS also uses geographic stratification to assure representation of regions of the state. The CPS, on the other hand, has more than 50,000 households included annually, but it has fewer than 1,000 Washington respondents, and because CPS uses an area-probability sample, these respondents are concentrated in two counties (Yakima and King) (Office of Financial Management Forecasting Division, 2001). The large, geographically dispersed sample of the WSPS suggests that the WSPS data can provide the most precise estimates for Washington.

Sub-state estimates. Policymakers want to know not only the number and characteristics of uninsured in Washington as a whole, but also how coverage is distributed across the state. Sub-state estimates can, for instance, help policymakers target areas that may need more intervention to reduce uninsurance or to expand resources for safety net providers who serve the uninsured. The same features of survey design that determine precision also determine the degree and type of sub-state estimates that a survey can produce.

Table 5 describes the geographic areas for which estimates can be generated among the population surveys analyzed in this paper. In general, the smaller the geographic unit available, the more informative a picture of how uninsurance varies throughout the state can be drawn. Because many of these surveys are national in scope, not all can address the distribution of the uninsured across the state of Washington. The BRFSS, CPS, FHIS, NSAF, and WSPS all support state-level estimates. The BRFSS and WSPS are the only surveys from which sub-state estimates can be made for the entire state. It is likely that the FHIS and NSAF can also support such estimates, but these estimates would not be as timely as those made using WSPS and special arrangements would have to be made with the sponsors of these surveys. Other surveys,

namely the CPS and CTS, can make sub-state estimates but these are not exhaustive of all areas, and, in the case of CPS, may have quite limited precision.

Table 5. Population Survey Support of Local Area Estimates

Survey	Geographic Areas			
	National	Groups of States	Washington State	Sub-State Geographic Areas
WSPS	No	No	Yes	King, Clark, and Spokane Counties, and five regions.
CPS	Yes	U.S. Census Divisions and Regions	Yes ¹	Large Metropolitan Statistical Areas (MSAs), counties and cities ²
BRFSS	Yes	Yes	Yes	Regions
CTS	Yes	No	No	Seattle and 11 non-WA MSAs
FHIS	No	10 States	Yes	Multi-county areas by special arrangement ³
MEPS-HC	Yes	U.S. Census Divisions and Regions	No	No
NHIS	Yes	U.S. Census Divisions and Regions	May be possible by special arrangement	No
NSAF	Yes	13 States	No	Multi-county areas by special arrangement ³
SIPP	Yes	U.S. Census Divisions and Regions	Limited estimation possible ²	No

¹ The Census Bureau recommends that state estimates be used with caution, as standard errors may be large. The Census Bureau published state estimates on a three-year average from the March CPS to create more stable estimates for making state-to-state comparisons.

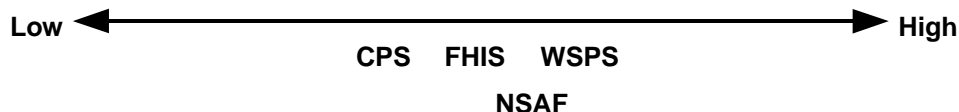
² Estimates for these areas are possible, but may be unreliable due to large standard errors and sample design considerations. Estimates of common outcomes such as the proportion of persons with employer health insurance are more likely to be reliable than estimates of rare events (such as persons losing coverage after loss of a job).

³ In principle, the sampling designs and sample sizes of these surveys permit estimation for multi-county sub-state areas. Sub-state identifiers are not available on public use data sets, but these might be available through special arrangement with survey sponsors.

Implications of survey precision analysis for Washington State. Figure 1 provides a graphic summary of the relative precision of the four population surveys that provide state-specific estimates for the Washington household population (the BRFSS is not considered because it does not support estimates for children). When considering precision alone, WSPS offers significant advantages over the other sources because of its large size and geographic dispersion of its sample. The NSAF and FHIS can also offer precise estimates for the state, but the CPS is quite a bit less precise. Starting in 2001, design changes to the CPS should lead to improved precision of state-level estimates. If these changes are successful, CPS reports released starting in 2002 will provide improved state coverage estimates. Again, owing to its large size and geographic

dispersion, the WSPS provides the greatest flexibility in generating sub-state estimates among all of the surveys considered.

Figure 1. Relative Precision of Population Survey Estimates for Washington State



Notes: The NHIS, SIPP, CTS, and MEPS are excluded because they do not provide state-level estimates; BRFSS is excluded because it provides estimates for adults only. This graphic is for illustration only, showing the approximate *relative* precision of each survey. Beginning in 2001, design changes were made to the CPS to improve state-level estimates.

Bias of estimates

As discussed at the beginning of this section, all surveys contain some inherent biases. Nevertheless, some survey methods are more prone to bias than others, and techniques exist for reducing bias. Survey designers face many tradeoffs that can affect precision and bias. For instance, the sample design choices discussed above, which may be made to reduce cost or increase precision, can also affect bias. This section highlights some additional potentially important sources of bias in making estimates for Washington. Table 6 provides some key design dimensions affecting bias, and the following text describes major, but potentially reducible, sources of bias in population health surveys.

Sample frames and population under-coverage. Survey sampling starts with a sampling frame. For RDD, the frame consists of all telephone numbers; for multi-stage APS, the frame consists of all areas, dwelling units within areas, and families within the dwelling units. List samples provide another form of sampling frame. In each case, some members of the target population are missed. In RDD samples, families without phones are missed; in standard APS, homeless persons can be missed; and list samples can include errors or out-of-date information (Lewis et al., 1998). According to the Census Bureau, sample frame under-coverage for the CPS and SIPP is approximately 7 percent, and this varies with sex, age, and race (Bennefield, 1995, as cited in Lewis, et al., 1998). Depending on who is missed, this could either inflate or deflate the estimates of the uninsured or other parameters of interest.

The CPS sample is designed to represent the nation and multi-state regions, and not individual states. Since only a few primary sampling units (PSUs) are selected for the CPS in any given state, frame under-coverage is likely to be a significantly larger problem at the state than the regional or national level. The Census Bureau recommends pooling data for several years to increase the robustness of state-level estimates, but since the number and location of PSUs changes little from year-to-year, pooling is not likely to reduce frame under-coverage bias at the state level. Sample frame under-coverage is a problem that applies to all of the surveys, although few survey sponsors provide estimates of the extent of under-coverage.

Since state-specific health coverage and access surveys are predominantly administered by telephone, it is especially important to understand the potential bias of this method. The percentage of households without telephones has decreased dramatically in the United States in the past 25 years, from nearly 20 percent of all households in 1963 to 6.2 percent in 1994 (Keeter, 1995). However, for low-income households, the percentage without telephones is substantially higher (e.g., 17 percent on the 1994 National Health Interview Survey), and the

same is true of other major population sub-groups (e.g., on the 1994 NHIS, 10 percent of Black and Hispanic households were without telephones; Anderson, Nelson, & Wilson, 1998). Households without telephones are also less educated, are more likely to be one-person households or very large households, have lived at their current residence for shorter periods (Keeter, 1995), and are more likely to be younger, live in rural-non-farm areas, and be single, divorced, or separated (Freeman, Kiecolt, Nicholls, & Shanks, 1982). Since insurance coverage, health status, health-related behavior, knowledge, and attitudes may differ for these sub-groups, it is important to take steps to reduce this type of coverage bias.

Three different methods have been suggested as ways to correct for non-telephone coverage bias. The first method is that employed by large national surveys such as the CTS, the FHIS, and the NSAF, where both a telephone sample and an in-person, non-telephone sample are included. Although this is the most effective way to reduce telephone coverage bias, it is quite costly and many state and local surveys may not have adequate funding for large in-person samples. For example, in the 1997 NSAF, even when sampling from neighborhoods identified by the Census as low telephone service areas, approximately 22 households were contacted for every one non-telephone household located (Judkins, et al., 1999). In-person surveys are at least twice as costly as telephone surveys (Groves, 1989), and there is some evidence that the difference is even greater (McAuliffe, et al., 1998).

Table 6. Potential Sources of Survey Bias in Population Surveys

Survey (see key)	Response rate	Respondent selection	Interview mode
WSPS	2000: <ul style="list-style-type: none"> 43% for general population 29% for expanded sample 1998: <ul style="list-style-type: none"> 59% for general population 43% for expanded sample 	MKA: Most knowledgeable adult is interviewee; responds for self and all other members of household	Telephone
CPS	93% overall (Fronstein, SHADAC) 80-82% completed the March supplement 43.2% in 1998 (Atrostic, et al., 1999)	<ul style="list-style-type: none"> MKA: Most knowledgeable adult is interviewee when possible; responds for self and all other members of household If individual moves from household, they are dropped from sample 	In person and by telephone, varies over the course of interviews
BRFSS	76.5% nationally	One adult (18+) is randomly selected from each household	Telephone
CTS	65% between 1996-1997 (Lewis, et al., 1998)	<ul style="list-style-type: none"> Individual adult responds for all household adult residents In addition, respondent supplies information on one randomly selected child in household 	Primarily telephone interviews; additional in person interviews for sample of households without telephone
FHIS	69.2% for RDD sample 42.9% for Medicaid sample 73.4% for BH list sample 51.5% for field sample	MKA: Most knowledgeable adult is interviewee; responds for self and all other members of the family insurance unit	Primarily telephone interviews; additional in person interviews for sample of households without telephone
MEPS-HC	65.2% for Panel 4 in early 2000	One family respondent reports for self and other family members	In person; except that initial contact is by mail and telephone and final interview is by telephone
NHIS	Reported as greater than 90% [National Center for Health Statistics (NCHS) Web site; http://www.cdc.gov/nchs/]	<ul style="list-style-type: none"> For family core: All family members are invited to respond for themselves. For children and adults who are not at home, a responsible adult family member may respond For adult core: One randomly selected adult responds for self (no proxies permitted) For child core: MKA—Most knowledgeable adult is interviewee; responds for self and all other members of household 	In person

Survey (see key)	Response rate	Respondent selection	Interview mode
NSAF	Approximately 64% in 1999	MKA: Most knowledgeable adult is interviewee; responds for self and all other members of household	Telephone For those interviewees without telephones, in person interviewers provided respondents with cellular phones, and interviews were conducted via cell phones
SIPP	79.1% in 1998 (Atrostic, et al. 1999)	<ul style="list-style-type: none"> Interviews are conducted with all individuals aged 15 and older. Proxies are permitted when necessary If individual moves from household, they are followed to new household, and new housemates are included in sample 	In person, with follow-ups conducted over telephone

The second method for reducing non-telephone coverage bias is to use existing data from large surveys that include non-telephone respondents to develop a weighting scheme (see, for example, Anderson, Nelson, & Wilson, 1998; Freeman, Kiecolt, Nicholls, & Shanks, 1982). Weights comparing the telephone data to the non-telephone data on key demographic variables and other variables of interest (e.g., health insurance coverage, health status) can be derived from these surveys and applied to independent survey data.

The third method for reducing non-telephone coverage bias is to include a question(s) on the survey that assesses transient telephone coverage (e.g., “At any time during the past twelve months has your household not had a telephone?”). The data from the transient telephone subgroup, which comprises about half of the total non-telephone population (Keeter, 1995), could be used to supplement the standard weighting procedure or to directly derive non-telephone estimates for variables of interest. It has been demonstrated that households with transient telephone coverage are much more similar to continuous non-telephone households than to continuous telephone households on both demographic variables and other variables such as health status and health insurance coverage (Keeter, 1995). This technique has been recently recommended as a cost-effective way to reduce the bias from telephone non-coverage (McAuliffe, Geller, et al., 1998).

A number of surveys reviewed here utilize both telephone and in-person interviewing. For example, the CTS, the FHIS, and the NSAF all include field samples of households without telephones, but rely primarily on telephone interviews for the vast majority of respondents. The two panel surveys reviewed here (MEPS-HC and the SIPP) use a combination of in-person and telephone interviewing across the different waves of data collection, allowing for the convenience of telephone interviewing while maintaining the rigor of in-person interviews. The remainder of the surveys utilize face-to-face interviewing exclusively, with the exception of the WSPS. The WSPS is a telephone-only survey that does not include any in-person interview sample. Although post-stratification weighting adjustments were made to correct for this, the WSPS is the most likely survey reviewed here to suffer from under-coverage of the non-telephone population.

Response rates. The survey response rate is a commonly reported survey statistic, and non-response can be a significant source of bias in survey estimates. Surveys measure response rates in different ways, making cross-survey comparisons difficult (Atrostic, Bates, Burt, Silberstein, & Winters, 1999), but comparisons are an important way to judge the potential for bias. Although methods to maximize response rates will vary by the nature of specific surveys, response rates are a reflection of the following:

- The salience of a survey’s topic (e.g., health survey response rates were generally higher during the Clinton health reform debate)
- A survey’s sponsorship (government-sponsored surveys generally have higher response rates than private surveys)
- Survey mode (in-person surveys generally attain higher response rates, followed by telephone and mail response rates)
- Whether interviews are conducted at a single point in time or repeated multiple times (the latter leading to lower total response)
- Follow-up methods (more is generally better)

There is no established standard for an adequate response rate, but most population surveys of the type considered here report response rates between about 60 percent and 90 percent (see Table 6). Although higher response rates are better, techniques exist to minimize bias from sub-optimal response rates (Cox and Cohen, 1985). Specifically, statistical strategies can be used to up-weight respondents who are similar (e.g., demographically or geographically) to non-respondents. These techniques can assure that basic demographic distributions are equivalent to Census or other “gold standard” estimates. The large federal surveys in our analysis report the higher response rates (e.g., over 90 percent for the CPS and NHIS). Because of the pervasiveness of telemarketing and the proliferation of telephone lines not used for voice communication (e.g., modem lines), calculating response rates for RDD samples and achieving high rates in such studies has become increasingly difficult. The response rate reported by the WSPS is lower than the other surveys in our analysis: 59 percent for the general sample in 1998 and 43 percent for the same sample in 2000. The rates for the expanded sample are even lower: 43 percent in 1998 and 29 percent in 2000. Non-response to individual survey items can also lead to bias. Again, techniques are available for minimizing such biases. These issues are discussed as they pertain to specific estimates in later sections.

Respondent selection. Allowing respondents to answer questions regarding someone other than him or herself (i.e., proxy responses) poses the problem that the respondent may not be able to answer questions accurately. For example, one adult may not know the true health insurance status of another adult in the family, although they may believe that they do and subsequently respond incorrectly. However, relying on exclusive self-response can exacerbate under-coverage of the population, as it is harder to access and interview each household member, thus reducing the number of people for whom data is collected.

Among those surveys that do permit proxy response, the majority request to speak with the “most knowledgeable adult” (MKA). Speaking with the MKA should improve accuracy, although there is the possibility that even the most knowledgeable person does not know everything about all household members and introduces some error into the data. An example of a survey that does not have the MKA as the respondent is the BRFSS, which does not permit proxy response. For the BRFSS, the respondent is simply a randomly selected adult who is asked to report on him/herself exclusively. Large federal surveys, such as the MEPS, supplement MKA interviews with self-administered questionnaires for selected questions (e.g., health-related behaviors and health status). Although this technique can reduce proxy respondent bias, it is effectively a survey-within-a-survey and can add significant costs.

Interview mode. Fowler (1993) describes many of the pros and cons of conducting interviews in person versus over the telephone. In-person interviewing can encourage people to take the survey more seriously and to consider their responses more carefully, resulting in greater accuracy. Visual aids used for in-person interviewing can help respondents follow complex instructions or sequences more easily, and it may be easier for the respondent to maintain their concentration and stay focused on the interview. In addition, in-person interviews can increase the number of people willing to respond. The primary benefits of telephone interviewing are financial, as they are significantly less expensive to conduct than in-person interviews. Although telephone surveys may be better for reaching certain sub-groups of respondents, particularly those in urban areas (Fowler, 1993), the main drawback of telephone surveys is that households without telephones will not be included in the sample.

Recall bias. Respondents may incorrectly reply to survey questions for a variety of reasons, but perhaps the most common reason is that they do not correctly remember the correct response. Incorrect reporting for this reason is considered recall bias. Recent events are more easily remembered than more distant ones (Groves, 1989). The CPS asks people to report their health insurance status for the previous year, rather than their current insurance status (like the WSPS) or their status for a shorter period of time (e.g., the SIPP asks about the preceding four months). Event memory decreases significantly over a one-year period, particularly for non-salient events, a category in which health insurance status falls for many people. Because of its long reference period, the CPS is particularly vulnerable to recall bias. It is easy to imagine a respondent not recalling a brief spell of uninsurance that occurred very early in the previous year, and subsequently being incorrectly classified by the CPS. In addition to leading to recall bias, the CPS's question wording increases the likelihood of misinterpretation of the item, an issue that is discussed further later in the report.

Implications of survey bias analysis for Washington State. Table 7 provides an assessment of the five potentially major sources of bias for population surveys available for analysis of coverage and access in Washington—frame under-coverage, response rate, respondent selection, interview mode, and recall. Although this table provides only a cursory summary of a highly complex issue, it does illustrate that no single source of information minimizes all major sources of potential bias. Thus, no definitive assessment of bias is possible. Nevertheless, this analysis has important implications for Washington. First, although the CPS is used by most states to track the uninsured, it suffers from important biases for making state estimates. With appropriate caveats, the CPS is nonetheless useful for trending and for comparing Washington to other states and the nation as a whole. Second, more precise and less biased estimates are available from the Washington State Population Survey, for analyses where cross-state or national comparisons are not required. Although the WSPS offers significant advantages for Washington, it has a comparatively low response rate and lacks adjustments for telephone non-coverage. In the end, the potential effects of these biases can only be assessed through empirical analysis. One such analysis of bias is presented below under “Estimates of the Uninsured.”

Table 7. Summary Rating of Potential Bias in Population Surveys Available for Analysis of Health Coverage and Access in Washington State

Survey (See key)	Potential Source of Bias for Making State Estimates				
	Frame & Population Coverage	Response Rate	Respondent Selection	Interview Mode	Recall
WSPS	Medium	Medium	Medium	Low	Low
CPS	High	Very Low	Medium	Very Low	High
BRFSS	High ¹	Low	Low	Low	Low
FHIS	Low	Low	Medium	Low	Low
NSAF	Low	Low	Medium	Low	Low

Notes: Although BRFSS sampling frame coverage is likely to be strong, its sample is not designed to cover the entire family and is thus classified as having a high potential under-coverage bias. Indicators in this table of levels of bias are for illustration only, and show the approximate relative level of each type of bias.

Content of Population Surveys

The previous section of this report discussed issues of survey precision and bias, which can affect the value of survey estimates regardless of survey content. In this section, the questionnaire content of the nine population health surveys described in Table 2, above, is described and compared. The topics follow from the research questions and policy issues identified in Table 1 above. Additional detail about population survey questionnaire content can be found in Appendix C.

Estimates of insurance coverage by source

Any analysis of health insurance coverage and options to extend coverage to the uninsured must begin with a description of who is covered by which sources. In other words, who is enrolled in employment-based, public programs, or individual market insurance coverage? Most of the surveys ask about coverage obtained through the following sources:

- Through an employer or union
- Purchased directly from an HMO or insurance company
- Medicare
- Military and Department of Veterans Affairs coverage (CHAMPUS, CHAMP-VA, TRICARE)
- Indian Health Services
- Medicaid
- Other state-sponsored programs

Although the wording and order of questions about sources of coverage varies across surveys, the surveys all ask about each source separately. In some cases, the Indian Health Services is not considered “coverage” because it is a direct delivery system, much like public clinics and hospitals rather than an insurance program. Additional items can be found in Appendix C, which has a more comprehensive list of related items, including questions about the primary policyholder and household members covered by the policy.

Tables 8a and 8b show estimates of sources of health insurance for non-elderly adults (older than 18 and younger than 65 years of age) and children (18 or under). Only surveys that provide recent numbers for the statewide non-elderly population are provided here. The estimates generated by the WSPS and the CPS are for the year 2000, while the estimates from the SIPP and the NSAF are for 1999, the most recent year for which data were available.

Table 8a. Source of Health Insurance for All Non-Elderly Adults (aged 19-64) in Washington State

	WSPS 2000		CPS 2000		SIPP 1999		NSAF 1999	
	%	Std Err**	%	Std Err	%	Std Err	%	Std Err
Employment	71.4	0.8	70.2	1.8	74.8	2.0	72.6	1.1
Medicaid/Basic Health Plan	11.5	0.6	7.0	0.9	7.1	0.8	6.7	0.5
Direct Purchase and Other	6.9	0.4	3.8	0.7	6.1	1.0	7.8	0.6
Uninsured	10.2	0.5	19.0	1.5	12.0	1.5	12.9	0.8
No. of cases	10741		1047		906		*	

* Number of cases not published for NSAF.

** Standard Error; larger standard errors indicate less precise percentage estimates.

Table 8b. Source of Health Insurance for Children Aged 18 and Younger*

	WSPS		CPS		SIPP	
	2000		2000		1999	
	%	Std Err	%	Std Err	%	Std Err
Employment	68.9	1.3	66.0	3.5	67.6	3.7
Medicaid/Basic Health Plan	18.8	1.0	15.3	2.6	20.6	3.2
Direct Purchase and Other	5.2	0.6	4.9	1.5	4.1	1.3
Uninsured	7.1	0.7	13.8	2.5	7.8	2.0
No. of cases	5343		458		446	

* NSAF data for children are not shown because they are not published by the survey sponsor."

Estimates of the distribution of coverage across surveys clearly vary. Although it is not possible to pinpoint exactly why the estimates vary from survey to survey, some evidence is available regarding the accuracy of these estimates. Reporting of enrollment in state-sponsored coverage appears to be of particular concern, and the way surveys deal with this problem can lead to variations in estimates. Lewis and colleagues (1998) review a number of reasons why state-sponsored coverage may be under-reported:

- Stigma is associated with public assistance programs, thus discouraging people from reporting it.
- Respondents may not realize they are enrolled in Medicaid at a given point in time.
- Individuals enrolled in Medicaid managed care plans may incorrectly identify themselves as being enrolled in private managed care, further reducing the number of people identifying as being in Medicaid.
- State Medicaid programs often go under different names, such as Hoosier HealthWise and Husky Health Plan. Respondents may not think of their health plan as being a Medicaid plan if it has a different name, and only some surveys include state-specific program names in their questionnaires.

- Failing to ask about specific programs by name in addition to Medicaid likely leads to under-reporting of enrollment in those programs. The WSPS has survey items covering all the state's public health insurance programs. Although the CPS has a long list of state-specific programs, Washington's Basic Health was not included in 2000, increasing the likelihood of reporting errors.

Medicaid under-reporting can be corrected, to some extent, through statistical imputation methods. Imputation is the process by which respondent reports of coverage are changed based on other respondent characteristics. For example, even if it is not reported, the CPS uses imputation to assign Medicaid coverage to children under 21 whose families have Medicaid and to people who receive welfare who live in states that require them to have Medicaid coverage (Lewis, et al., 1998). In addition, the CPS also imputes insurance status for those who reported that they did not know what coverage they (or a household member) had. The Urban Institute adjusts CPS data for under-reporting of Medicaid in the CPS by using a micro-simulation model to test for Medicaid eligibility among respondents who did not report Medicaid coverage and imputing coverage to some of the eligibles (Nelson & Mills, 2001). This resulted in a decrease in the estimate of uninsured children by 30 percent using the March 1995 CPS. However, this may overcompensate for the CPS's overly conservative estimate. Thus, the issue of imputation has implications not only for the estimates of the specific types of insurance Washingtonians have, but also estimates of whether they have health insurance at all.

Estimates of the uninsured

As shown in Tables 8a and 8b, above, estimates of the uninsured vary a great deal across surveys. The CPS is thought to over-estimate uninsurance compared to state population surveys (State Health Access Data Assistance Center, 2001a; State Health Access Data Assistance Center, 2001b). Preliminary analyses of Washington uninsurance rates demonstrate the same pattern when the WSPS is compared to the CPS and the SIPP. For 2000, the CPS estimate of the number of uninsured in Washington is almost twice that of the WSPS. The SIPP, which is similar to the CPS in terms of its sampling strategies, produces an estimate of the uninsured in Washington that is much more aligned with the WSPS than the CPS.

Figures 2 and 3 illustrate that the discrepancies among the surveys are not unique to 1999/2000 data. Similar patterns can be found over time: the CPS tends to be discrepant from the other surveys, particularly in its estimates of uninsured children. In addition, the CPS shows more variability than the other surveys, as its estimates fluctuate from year to year more than those of the other surveys do. Again, this is most true among its estimates of uninsured children. The variability in the CPS over time and the historical lack of concordance with the other surveys are reasons to be cautious of the CPS estimates of the uninsured at the state level.

In addition to the general methodology, such as sampling strategy discussed in the previous section, a number of features of population surveys can affect estimates of uninsurance rates. These features include whether uninsurance verification questions are used, the reference periods of coverage questions, cognitive factors that affect response accuracy, and the manner in which surveys account for non-response to insurance questions. These factors, discussed below, contribute to the variations in uninsured estimates illustrated above.

Verification questions. Verification questions check that a person who has responded that they are not covered by any form of insurance mentioned in the interview is in fact uninsured.

Verification questions are also asked for other members of a household when proxy response is

Figure 2. Uninsured Non-Elderly Adults, Age 19 to 64, Washington State, 1993-2000

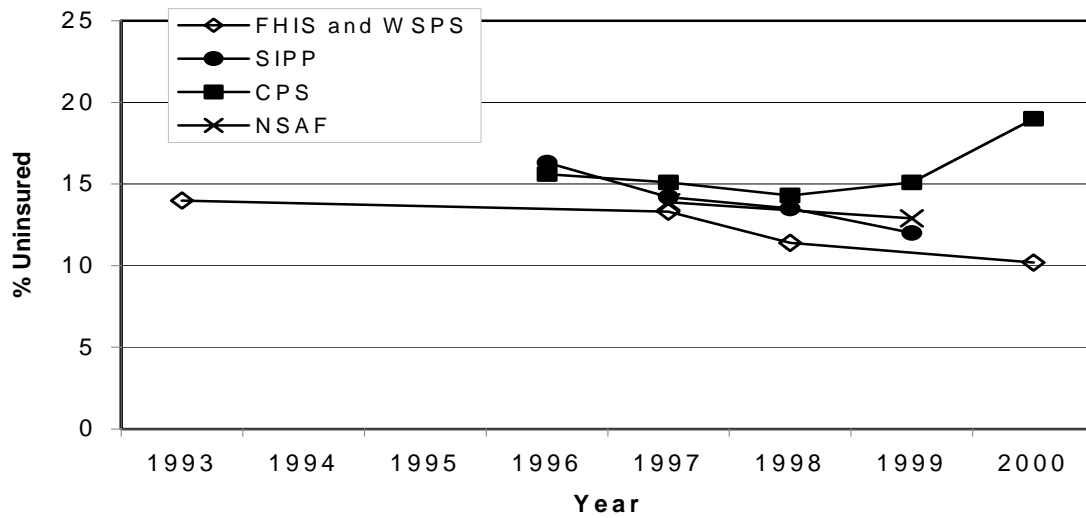
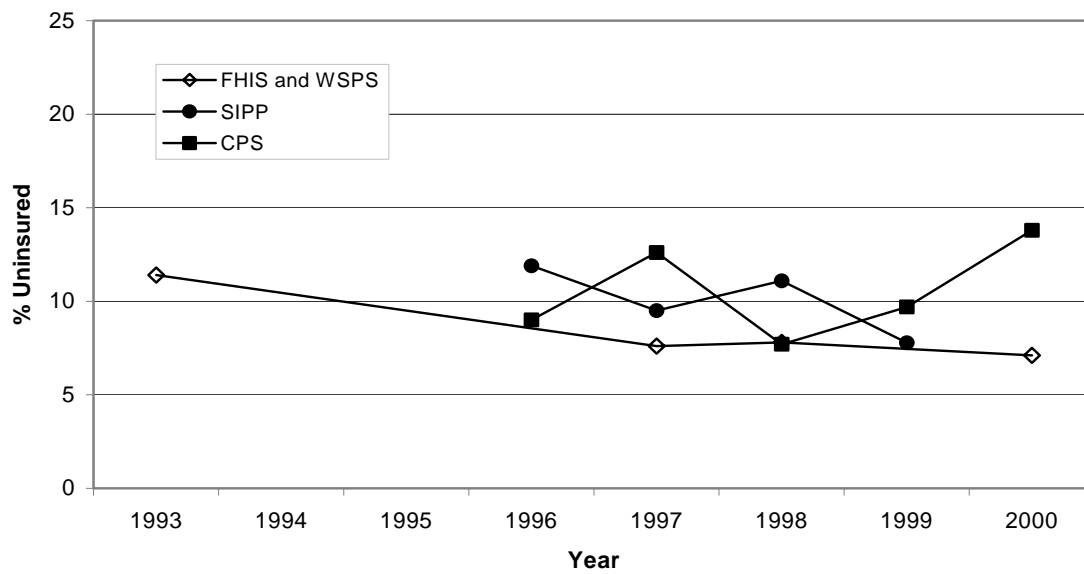


Figure 3. Uninsured Children, Aged 0-18, Washington State, 1993-2000



permitted. This question is generally asked after the respondent has stated that he or she is not covered by any of the forms of coverage mentioned. A typical verification question is “I have recorded that you were not covered by a health plan at any time in 1999. Is that correct?” (CPS, 2000). Because the question is designed to catch people who would otherwise be counted as uninsured, the anticipated effect of including this question is a lower uninsurance estimate. Verification questions may, in fact, correctly identify persons who are covered but were reported as uninsured, but these questions may also pressure some respondents to give a socially desirable response that a person is covered, even if he or she is not.

The CPS did not have a verification question and has historically generated higher estimates of uninsurance compared to other national surveys. In March 2000, a verification question was included in the CPS in order to test its effects on uninsurance estimates. As expected, including this question resulted in a significant decrease in the number of uninsured estimated by the CPS. Eight percent of those who would otherwise have been classified as uninsured reported that they did in fact have health insurance coverage. This lowered the CPS estimate of the uninsured by 3.3 million people (Nelson & Mills, 2001). The CPS will include verification questions in the future, and they were used to generate the 2000 estimate. Similarly, the CTS recently added a verification question, and it resulted in a decrease of approximately 7 percent in the number of uninsured, reducing the estimate from 35.1 million to 32.8 million nationally (Nelson, et al., 2001).

The surveys reviewed here vary on whether or not they include a verification question. Neither the WSPS nor the SIPP has a verification question, and they subsequently calculate the uninsured as a residual. The MEPS-HC, the NHIS, and the NSAF do have verification questions (Office of the Assistant Secretary of Planning and Evaluation, 2001). Even with the verification question, the CPS’s estimate is significantly higher than those of the WSPS or the SIPP.

Reference periods. The wording of insurance questions can also make a significant difference in the estimates of uninsurance that can be generated by each survey (Table 9). Point-in-time uninsured estimates can be derived from all of the surveys. However, until 2000, the CPS only supported annual (prior year) uninsured estimates. In the main battery of CPS questions, respondents are asked whether members of their household had any of each source of coverage at any time in the previous year, and those who respond that they have no coverage should be interpreted as reporting that they were uninsured for the entire year. The validity of this method is controversial. Many analysts believe that many respondents report current insurance status rather than status during the preceding year, which could in part account for the CPS’s higher estimates of uninsurance (Lewis, et al., 1998). The WSPS asks only about coverage at a point in time. The remaining surveys support both current and historical uninsured estimates.

Table 9. Types of Uninsurance Estimates Generated by Population Surveys

	WSPS	CPS	BRFSS	CTS	FHIS	MEPS	NHIS	NSAF	SIPP
Uninsured point in time	X	X ¹	X	X	X	X	X	X	X
Uninsured entire year			X	X	X	X	X	X	X
Ever uninsured prior year		X	X	X	X	X	X	X	X
How long uninsured			X	X	X	X	X	X	X
How long covered			X						X

¹ The CPS has experimented with adding questions about current coverage, but the questions measuring coverage in the prior year remain the primary coverage concept in this survey.

Current and historical uninsured estimates both have value in health policy analysis. Current uninsured estimates most likely have the greatest validity, as respondents are not required to recall their coverage history (Lewis, et al., 1998). But public program participation often requires uninsurance waiting periods typically of six months to a year prior to eligibility, thus some history information is important. Other policies may target short-term uninsured periods (e.g., during spells of unemployment), thus duration information can be of use. However, true longitudinal surveys (i.e., SIPP and MEPS), where individuals are re-interviewed over time, are likely to provide much more accurate estimates of uninsurance duration and the causes of uninsured spells (e.g., job loss) than cross-sectional (single point in time) surveys.

Cognitive factors. A number of cognitive factors can affect the respondents' accuracy on the insurance questions. The length of recall periods used by those surveys that are not asking about current status can affect accuracy. Cognitive testing of surveys indicate that accuracy significantly declines with longer reference periods (Groves, 1989). The CPS asks respondents to recall insurance status for the previous year, and the SIPP asks for the previous four months. The MEPS-HC's reference point changes depending on when the respondent was interviewed (January 1 of that year is a constant reference point). The lack of accuracy related to longer recall periods is one important reason that point-in-time estimates may be preferable to others.

Another cognitive factor to consider is the level of detail included in the questionnaires, which can affect the accuracy of responses. For example, the SIPP asks extremely detailed health insurance questions, such as asking to see respondents' Medicaid and Medicare cards. In addition to improving accuracy by objectively checking respondents' answers, this may prime other health relevant information, resulting in improved accuracy on other items that are not directly related to Medicaid or Medicare, such as utilization. Neither the WSPS nor the CPS includes particularly detailed health insurance questions, nor do they seek objective verification of interviewees' responses.

In much the same way that the level of detail of the questions can affect accuracy, so can the focus of the survey. A focus on health may prime health insurance relevant information and result in greater accuracy of responses. Neither the CPS nor the WSPS focus specifically on health, and the health insurance questions are toward the end of the surveys, which may further decrease attention and resultant accuracy.

Non-response to insurance questions. Although item non-response can be an important source of bias for many measures, it is particularly important for coverage estimates. There are multiple ways of dealing with people who do not respond to any of the health insurance questions. The most common method among the surveys reviewed here was to consider these respondents uninsured, which was done with the WSPS, the MEPS-HC, the CTS, and the NHIS. This is

likely to artificially inflate estimates of uninsurance. Otherwise, coverage may be imputed, as discussed above.

Definition of uninsurance. Although many of the issues discussed thus far have unpredictable effects on uninsurance estimates, the way that uninsurance is defined usually has predictable effects on uninsurance estimates (Lewis, et al., 1998). For example, the CTS counts people who report using the Indian Health Service as having health insurance, while none of the other surveys do (Office of the Assistant Secretary of Planning and Evaluation, 2001). Similarly, the MEPS-HC groups all public insurance together, something the other surveys do not do. This variability renders cross-survey comparisons extremely difficult. Fortunately, both the WSPS and the CPS provide public use data sets that allow researchers to modify some of the definitions and render the surveys more comparable. Variability in the way age, income, ethnicity, and insurance types are measured are potentially important differences across surveys, and fortunately these are usually easily corrected.

For example, the estimates in Table 8a and 8b were generated from public use data from the CPS, the WSPS, the SIPP, and the NSAF. Some differences in the way the data are reported cannot be corrected (e.g., state health insurance programs and Medicaid are reported together for the CPS because they did not ask about Washington's Basic Health separately in 2000). However, it is possible to adjust for some differences post-hoc, by standardizing the groups for which the estimates are made. For example, it is possible to standardize the definition of non-elderly adult; for Table 8a the definition is over 18 and under 65 years of age. More importantly, it is possible to standardize the categorization of insurance types wherever allowable.

The categorization of insurance types was standardized across the estimates in Table 8a and 8b. A hierarchy was used to generate these estimates, so that if a respondent reported that he or she was receiving both Medicaid and employment-sponsored insurance, the respondent was counted as having only employer-sponsored insurance. The hierarchy reflects how coverage works in practice, with public sources paying only after other coverage is exhausted.

Characteristics of the uninsured

Designing policies to fill gaps in health insurance coverage requires an understanding of the characteristics of persons with and without coverage. Public coverage programs, such as Medicaid and Basic Health, target benefits according to income and family structure. It is also common for public program eligibility to be linked to immigration status and eligibility for employer-based coverage. Appropriately targeting resources for other kinds of programs, such as safety net provider subsidies, requires an understanding of the circumstances of the uninsured, such as population demographic characteristics. Finally, in order to appropriately target resources to the most needy populations, information on health status, utilization history, and access to care is needed. Such factors are also related to the cost of potential public program expansions and the viability of market-based strategies. For example, private coverage reforms that skew the market to high-cost individuals may render private coverage initiatives too expensive to be viable.

All of the surveys reviewed include the demographic information needed for coverage policy analysis. These include age, race, Hispanic ethnicity (some also include information about other ethnic groups), sex, and education. In addition, most of the surveys reviewed include detailed information about relationships among household members. Relationship information is needed to combine household members into families that might be considered eligible for coverage

under a specific policy option. For example, most surveys ask about all persons in the household who are related to the respondent, but coverage eligibility may be limited to spouses and the children. This is true of all surveys except the BRFSS, which asks questions only about the respondent and doesn't permit analyses at the family level. Additional detail about these variables can be found in Appendix C.

Table 10 outlines the availability of population survey data on health status, health care utilization, and access to care. Basic health status information is available on all of the surveys. Utilization is also generally well measured on all the surveys except for the WSPS and the CPS, which do not examine these areas at all. At least some access-to-care items are included in most surveys, but are not examined on the WSPS and the CPS. The SIPP includes limited information about access.

Table 10. Survey Items Regarding Health Status, Utilization, and Access to Care

	WSPS	CPS	BRFSS	CTS	FHIS	MEPS	NHIS	NSAF	SIPP
Health Status									
Self-assessed general health	X	X	X	X	X	X	X	X	X
Activity limitation/disability	X		X	X	X	X	X	X	X
Other			X	X		X	X	X	
Utilization									
Doctor visits			X	X	X	X	X	X	X
ER visits			X	X	X	X	X	X	
Inpatient				X	X	X	X	X	X
Preventive services			X	X	X	X		X	X
Other			X	X	X	X	X	X	X
Access to Care									
Usual source of care—type of place			X	X	X	X	X	X	
Usual source of care – particular physician			X	X		X			
Perceived barriers to care/unmet need			X	X	X	X	X	X	X
Satisfaction with care			X	X	X	X		X	

Economic variables are also important for analysis of insurance status and coverage policy options. Table 11 provides a sample of the employment and income questions on each survey, both of which are important predictors of having health insurance. For a more complete listing of these items, see Appendix C. These measures show significantly more variability across surveys than the demographic measures. The CPS and the SIPP are notable for their intensive treatment of income and employment related issues. This is not surprising considering that the CPS is a commonly cited source of unemployment rates, and the SIPP is often used to understand transitions between employment and unemployment.

Table 11. Survey Items Regarding Employment and Income

	WSPS	CPS	BRFSS	CTS	FHIS	MEPS	NHIS	NSAF	SIPP
Employment									
Current work status	X	X	X	X	X	X	X	X	X
Past year work status	X	X			X	X	X	X	X
Current full time/part time/temporary	X	X		X	X	X		X	X
Number hours usually worked per week	X	X		X	X	X	X	X	X
Type of industry or business	X	X		X	X	X		X	X
For those people who report some unemployment									
Has unemployed person been looking for work	X	X			X			X	X
Income									
Combined family or household income	X	X	X	X	X	X	X	X	X
Received Social Security or SSI payments	X	X			X		X	X	X
Received public assistance or welfare payments	X	X			X		X	X	X
Received veteran's paymnets		X					X	X	X
Assets									
Any questions about assets	X	X				X		X	X

Affordability of coverage

Assessment of the affordability of health insurance coverage for Washingtonians requires, at minimum, data on income levels, household size and composition, geographic location, and the cost of coverage. Each of the surveys included in this analysis includes the necessary information about income, family size and composition, and related variables (Table 11). Support for generating estimates for sub-state areas is quite limited in all surveys except the WSPS (Table 5), above. Information about the cost of coverage is not available in population surveys and must be drawn from other sources. For private coverage, the best source of premium information is employer health insurance surveys (see Appendix D) and actuarial tables. These sources divide premium costs into employer and employee shares, which is vital for affordability analysis.

Because they do not exist in a single source, linking the premium costs and insurance copayment requirements that families face with other affordability-related family characteristics (such as income and family structure) is difficult. At the state-level the best way to examine linked employer and household data is to “synthetically” match data from the two types of surveys. This is typically done by assigning employer information to household survey records using information in common with both files (e.g., industry, size of business, wage mix of the business with the wage levels of household members, whether businesses offer and household members are offered health coverage). The matched dataset can then be used to compare ability to pay with the cost of coverage for population survey respondents. It is important to note that the best way to accomplish this linkage requires record-level employer survey data (i.e., not aggregate statistics), thus the EHIS offers the only practical option for conducting detailed affordability analyses at the state level.

Dynamics of uninsurance

Understanding the typical length of time Washington's uninsured go without coverage has many policy implications. The types of policy interventions necessitated by short-term uninsurance are often quite different from those that address long-term uninsurance (e.g., subsidizing COBRA coverage vs. increased state participation in public health insurance coverage programs). Longitudinal surveys help to identify factors that distinguish the long-term and short-term uninsured and can help policy makers target specific populations, for example, those with a particularly high likelihood of being uninsured over a long period of time. Most of the surveys can provide a picture of changes in uninsurance at the aggregate level (i.e., year-to-year changes in the population as a whole). In addition, many surveys provide indicators of recent coverage history, for instance whether a person lacked coverage for some or all of the prior year (Table 9, above). However, an in-depth understanding of the dynamics of coverage over time can come only from "panel" or "longitudinal" surveys that follow the same families or individuals in multiple interviews over a period of months or years. Only two of the national population-based surveys provide a true longitudinal view of health insurance coverage at the individual level—the SIPP and the MEPS-HC. The remaining surveys analyzed in this paper are cross-sectional, so that each individual contributes data only once (e.g., the WSPS) or they are panel surveys that ask only about health insurance during one interview (e.g., the CPS). In addition to spells of uninsurance, the SIPP and the MEPS-HC can provide information about employment turnover, which also has implications for some policy strategies.

A major limitation to the SIPP and the MEPS-HC is that they were not designed for state-level estimates. However, despite the warnings by its sponsors, the SIPP is sometimes used for state level estimates (Short, unpublished manuscript). (The MEPS-HC cannot be used for this because state identifiers are not available in the data file.) Despite the availability of state identifiers on the SIPP, the sampling strategy, limited state-level sample sizes, and other design features of this survey make its application to Washington State policy analysis dubious, especially for tracking relatively rare events (e.g., job loss).

Panel surveys are expensive and difficult to conduct. Even when using such panel surveys at the national level, caveats apply. For instance, SIPP respondents are interviewed once every four months for two and a half years. Respondents are asked to report on their health insurance over the preceding four months. Transitions in coverage status are more likely to be reported at the time of the interview than for the months between interviews. Although one would expect one quarter of the transitions to happen at the beginning of the first month or at the end of the fourth month, between 75 and 90 percent of new spells are reported as occurring during those times (Czajka, 1999). This phenomenon is known as the "seam effect." Possible causes of this effect include recall error and demand effects, such that the interviewer and respondent want to simplify or shorten the interview. These effects must be considered when analyzing the SIPP data.

Reasons people go without coverage

Designing policies to encourage voluntary enrollment in health coverage requires understanding the systemic, perceptual, and values- or preference-based processes or decision-making strategies that influence Washington's residents as they elect or do not elect to secure health insurance coverage. Many of the population surveys reviewed, including the WSPS, have open-ended items regarding the reasons for lack of health insurance, allowing for the full range of possible

responses. Frequent responses include that health insurance is too expensive, unnecessary, and difficult to obtain (FHIS, 1997), and these reasons are consistent across surveys. Some surveys have information on satisfaction with care and usual source of care, which can fill in the picture of why some people may drop health insurance coverage and why others feel they do not need it. Most surveys include information on other factors that are related to coverage, such as health status, employment characteristics, and income.

Specific attitudes or beliefs that might predict health coverage, such as risk averseness, beliefs in the efficacy of medical care, and comfort with using free or discounted services available through safety net clinics or through emergency rooms are generally not given in response to open-ended questions about why a person lacks coverage. Specific questions covering these concepts might be useful in identifying at-risk populations or developing outreach strategies for coverage policies or alternative policies. None of the surveys reviewed contain detailed batteries of such questions, although on the national level MEPS-HC provides some relevant information.

Implications of survey content for Washington State

The population and employer survey resources available to Washington State are quite rich and yet gaps and tradeoffs abound. For many applications, there is not a perfect or even single best source of survey data. Nevertheless, analysts must make decisions about which sources to use for which purposes. In this section, the strengths and weaknesses of the sources reviewed are summarized. First, the comparative advantages of alternative survey resources for identifying population coverage gaps, overlaps, and barriers are summarized. Then, the comparative advantages of these resources for analyzing specific policy options are assessed and summarized. These assessments of survey content are combined with the evaluation of survey precision and bias in formulating recommendations, which are presented in the last section of this report.

Adequacy of survey content for identifying coverage gaps, overlaps and barriers. No single survey provides all of the information needed by Washington for describing its system of health insurance coverage and the problem of the uninsured or for analyzing policy options for improving coverage or access to care. Selecting the best sources requires the careful balancing of strengths and weaknesses of each. This section describes these survey assets for each of five content areas. For each of these, Table 12 summarizes areas of relative strength and weakness of the surveys that are designed to provide Washington-specific estimates. Surveys included in this assessment but which are not designed to provide Washington-specific estimates (i.e., MEPS-HC, NHIS, and SIPP) are referred to in the discussion as well.

Table 12. Summary Assessment of Survey Content for Health Coverage Analysis for Washington State

	WSPS	CPS	BRFSS	FHIS	NSAF
Sources of coverage	Strong	Strong	Strong (adults only)	Strong	Strong
Uninsured	Strong	Moderate	Strong	Strong	Strong
Characteristics of uninsured	Moderate	Moderate to Weak	Moderate (adults only)	Strong	Strong
Affordability of coverage	Moderate	Moderate	Weak	Moderate	Moderate
Dynamics of coverage	Weak	Weak	Weak	Weak	Weak
Reasons people go without coverage	Moderate to Weak	Weak	Weak	Moderate to Weak	Moderate to Weak

All the surveys provide adequate information about sources of coverage, but as noted above, the specific coverage concept measured varies across surveys. The main CPS coverage measures refer to the prior year; the other surveys measure current coverage. This difference renders CPS less useful for counting the uninsured, given potential recall bias in annual coverage measures. Nevertheless, the CPS remains the best source for national and cross-state comparisons, and it figures prominently in national coverage debates so it is an essential source.

Two surveys stand out for use in describing the characteristics of the uninsured, the FHIS and NSAF. These surveys include fairly comprehensive batteries of questions about health and functional status, utilization of services, access to care, income, and employment. The BRFSS also covers a comprehensive range of topics, but is limited to adults. WSPS and CPS are quite strong on employment and income. Most analyses of coverage do not require the full range of variables included in the FHIS and NSAF, although studies of access to care do require such measures as utilization of ambulatory care and barriers to access, which only those datasets include.

All the surveys include only some of the data needed to assess affordability of coverage. As noted above, population survey analysis of affordability requires that supplemental information about the cost of coverage be added to the dataset. Supplemental information is available in employer surveys, such as the EHIS, and can be linked using information common to both the population and employer data. All the surveys, except the BRFSS, include the information needed to accomplish this linkage. Sponsors of the EHIS do not anticipate repeating that survey; and the alternative source, the MEPS-IC, is not available for public use. There are likely to be serious limitations on the level of detailed work on affordability that can be completed in the future.

A second area where Washington-specific survey resources do not provide adequate content is the dynamics of coverage. Such analyses require true longitudinal surveys, namely the MEPS-HC and SIPP, which are not designed to produce Washington estimates. Special population surveys such as the Washington WorkFirst Study, which provides longitudinal estimates for welfare clients and national or regional estimates from MEPS-HC or SIPP can provide useful information about duration of uninsured spells and events associated with transitions to and from spells of uninsurance. True longitudinal surveys are very complex and costly to administer, and no state has devoted the resources necessary to do so.

Finally, the surveys available for analysis in Washington include only basic information needed to assess reasons persons go without coverage. Some of the surveys, including the WSPS, elicit stated reason(s) for not having coverage from respondents, but such statements are of only limited value. In general, simple open-ended questions about why respondents lack coverage generally lead to one of two answers: lack of affordability and lack of need. Comprehensive batteries of attitudinal and values questions have potentially greater use in identifying specific coverage barriers. Unfortunately, no survey producing Washington-specific estimates includes such question batteries. At the national level, the MEPS-HC does contain some relevant questions about attitudes toward coverage and risk.

Adequacy of survey content for assessing coverage policy options. In addition to filling the need to describe and understand the problem of the uninsured, survey data are also vital for evaluating the likely effect of public policy options for improving access to coverage and health care services. To assess the adequacy of survey resources for policy analysis purposes, we identified

key indicators of policy impact for each of the categories of policy options identified in Table 1 at the outset of this report. These indicators are enumerated in Tables 13 to 18, along with an assessment of which survey sources provide the best data on each indicator. As well, these tables provide detailed comments about the limitations of existing data, where warranted, for each indicator. The list of indicators is designed to be representative, rather than exhaustive.

Table 13 lists eight major variables that would be required to systematically analyze the potential effect of public policies to provide incentives for individuals and families to purchase health care coverage. Some indicators are straightforwardly available from questions asked in the WSPS, including current coverage status, eligibility for employer-sponsored coverage, and, to a smaller degree, measures relevant to affordability of private coverage and eligibility for public coverage. In these last two areas—affordability and eligibility—WSPS may require supplementation. Employer premium data, for instance, for determining whether affordable coverage is available requires employer premium data (e.g., from the MEPS-IC or EHIS); and evaluating public program eligibility may require, for instance, insurance history information available on the FHS but not the WSPS. Washington-specific data are not available for assessing the potential effect of programs targeted to persons in transition, for example after loss of a job; here some inferences may need to be drawn from national or regional estimates from the MEPS-HC or the SIPP. Finally, information about attitudes or values for use in identifying fruitful strategies for increasing voluntary enrollment in public or private coverage initiatives is generally lacking at the state level.

Other policy strategies would require similar kinds of information, with attendant strengths and weaknesses. For example, evaluating policy strategies to broaden existing public coverage initiatives (Table 18) and provide employers with incentives to offer coverage (Table 14) require basic coverage information available in the WSPS. Evaluating policies focused on employer behavior require data from employer surveys. As noted, only two employer health insurance surveys are available in Washington, the MEPS-IC and EHIS. Like population data, however, these surveys are not adequate for measuring attitudinal predictors of why some employers offer (and fund) coverage and others do not (Table 14, Indicator 7).

Some strategies require other measures that are not available in population or employer surveys. Specifically, analysis of pooled purchasing (Table 15), direct provider subsidies (Table 16), and market and regulatory reforms (Table 17) requires information not reported in surveys. Depending on the specific policies under consideration, administrative data, such as information from program enrollment applications or insurance regulatory filings, may be available to supplement survey data. In these cases, analysts may pursue strategies to combine data from various sources to create useful analytic databases.

Table 13. Provide New Financial Incentives for Individuals and Families to Purchase Coverage (Policy Option 1)

Selected Survey Indicators¹	Best Source	Comments
1. Current health insurance coverage status.	WSPS	The FHIS provides comparable data for earlier periods.
2. Eligibility for and enrollment in employer coverage (self or through family member).	WSPS	The FHIS provides comparable data for earlier periods.
3. Cost of employer-sponsored insurance, including employee contributions, if offered, and cost-sharing.	MEPS-IC ²	Employer surveys such as MEPS-IC provide prevailing average premium costs and employee premium shares, but persons who forgo offered coverage face higher premiums on average.
4. Eligibility for and cost of public programs.	WSPS FHIS	Public program eligibility criteria may include uninsurance history (e.g., length of time without coverage), income, assets, age, family structure, disability and citizenship. The WSPS includes elements for each of these except uninsurance history and assets. These variables can be obtained from other sources, such as the FHIS (coverage history).
5. Affordability of coverage.	WSPS	Based on estimates using income and family structure measures as well as eligibility of and cost of public or employer coverage.
6. Transitions/changes in eligibility for coverage (e.g., length of time unemployed, changes in income, changes in family structure).	SIPP MEPS-HC*	Data on transitions needed to estimate eligibility for transitional coverage, such as expanded COBRA. SIPP and MEPS are not designed to make state estimates, and while SIPP does include state identifiers, estimates at the state level are likely to be unreliable for many indicators.
7. Current COBRA eligibility.	--	There is no good source of information on COBRA eligible population. The WSPS can provide the number of persons who left a job in the prior year, but information about recent job changes for those currently working is unavailable. SIPP and MEPS-HC are the best sources for estimating COBRA eligibility.
8. Reasons for being uninsured (e.g., attitudes, willingness to pay for coverage, awareness about public programs, etc.).	--	Only limited information is available in WSPS and other sources. MEPS-HC includes more detailed attitudinal questions, but does not provide state-level estimates.

¹ Indicators are for the non-institutionalized population, except MEPS-IC, which surveys employers.

² MEPS-IC is the best on-going source of information. Although basic estimates are available from MEPS-IC, these data are not available to analysts outside the sponsoring agency. For the years 1993 and 1997, the EHIS provide comparable data that are more accessible to analysts.

-- Indicates that there is no good source, although limited information may be available (see Comments column).

* These surveys do not support reliable state estimates.

Table 14. Provide New Financial Incentives for Employers to Purchase Coverage for Their Employees (Policy Option 2)

Selected Survey Indicators¹	Best Source	Comments
1. Current health insurance coverage status.	WSPS	See Option 1, Indicators 1-3 above.
2. Eligibility for and enrollment in employer coverage (self or through family member).	WSPS	
3. Cost of employer-sponsored insurance, including employee contributions, if offered.	MEPS-IC ²	
4. Employer-sponsored health plans subject to state regulation (i.e., not self-funded).	MEPS-IC	Employer surveys provide the number of employment establishments and number of employees eligible for and enrolled in self-funded and non-self-funded plans. These surveys do not account for dependents of employees who may be eligible or enrolled in such plans. Employer and population survey data can be combined to simulate the total number of persons (workers and dependents) eligible for or enrolled in self-funded employer health plans.
5. Employer and worker characteristics related to eligibility for public premium assistance programs (e.g., number of workers, number of low-wage workers).	MEPS-IC WSPS	MEPS-IC provides characteristics of firms and employment establishments (location of a firm) and their workers, but excludes information about dependents and self-employed persons with no employees. WSPS provides population-based information about employment characteristics of all workers and their families.
6. Number and characteristics of employers currently participating in public premium assistance programs.	--	Available from administrative sources (e.g., enrollment files).
7. Reasons employer states for not offering or funding coverage for workers, attitudes toward public premium assistance programs.	--	Generally not available.

¹ Indicators are for the non-institutionalized population, except MEPS-IC, which surveys employers.

² See Note 2 under Option 1.

-- Indicates that there is no good source, although limited information may be available (see Comments column).

Table 15. Encourage Pooled Purchasing (Policy Option 3)

Selected Survey Indicators¹	Best Source	Comments
1. Composition groups that could comprise pools, and potential number of persons eligible for coverage through pools.	WSPS MEPS-IC ²	WSPS can provide some valuable information for analysis of potential pools, but would have to be linked to administrative sources. For example, WSPS can be linked (e.g., at the zip code level) to information describing local school districts to develop information about the number and characteristics (e.g., insurance status) of persons in families with school-aged children by type of school district (e.g., urban, rural, suburban). MEPS-IC can provide information about the number and distribution of firm and establishment characteristics that could comprise potential pools (e.g., firm size, industry, premium costs).
2. Characteristics of persons actually enrolled in or eligible for coverage through potential pools.	--	Actual pools are likely to be too small to permit the use of existing survey sources to estimate characteristics of actual enrollees or eligible persons. Administrative data or special studies would be required. The EHIS includes some relevant information about pool participation. WSPS and MEPS-IC can be used to provide statewide or (in the case of WSPS) sub-state estimates of group characteristics potentially eligible for certain <i>types</i> of pools (e.g., school districts or groups of employers). Caution should be used when extrapolating from such estimates to actual pool characteristics because of potential self-selection by health status or other characteristics.
3. Interest in pool participation among potential participants.	--	Generally not available, see note under Indicator 2 above regarding the EHIS.

¹ Indicators are for the non-institutionalized population, except MEPS-IC, which surveys employers.

² See Note 2 under Option 1.

-- Indicates that there is no good source, although limited information may be available (see Comments column).

Table 16. Provide Direct Provider Subsidies for Safety Net or Charity Care Services (Policy Option 4)

Selected Survey Indicators¹	Best Source	Comments
1. Potential demand for safety net/charity care services.	WSPS	For example, counts and characteristics of the low-income uninsured.
2. Number and characteristics of actual safety net/charity care users.	NSAF FHIS Local data	Limited information is available to describe safety net users in population survey data. The best available indicators are the type of usual source of care (e.g., clinic or hospital outpatient dept.) and emergency room utilization. The latter measure is limited in that surveys cannot discern true emergent from non-emergent use.
3. Availability of safety net/charity care services.	--	Not available from survey data.
4. Attitudes toward using safety net services (e.g., stigma).	--	Generally not available.

¹ Indicators are for the non-institutionalized population.

-- Indicates that there is no good source, although limited information may be available (see Comments column).

Table 17. Enact Market and Regulatory Reforms (Policy Option 5)

Selected Survey Indicators ¹	Best Source	Comments
1. Eligibility for and enrollment in employer coverage (self or through family member), by firm size, health status, utilization history and demographics.	WSPS	WSPS provides data on eligibility and enrollment in employer-sponsored coverage by firm size, health status and demographic information. Similar information is available from the NSAF and FHIS, which also include utilization history information.
2. Employer-sponsored health plans subject to state regulation (i.e., not self-insured).	MEPS-IC ²	See Option 2, Indicator 4 above.
3. Enrollment in insurance purchased directly from an insurance company or HMO (i.e., non-group coverage) by health status, utilization history and demographics.	WSPS	See comments under Option 5, Indicator 1 above.
4. Premiums and scope of benefits of employer-sponsored health insurance.	MEPS-IC EHIS	The MEPS-IC includes national and state-level information, which is published by the Agency for Health Care Research and Quality, but the actual data are not available for state analysts to use directly. The EHIS includes comparable information for Washington and are available to state analysts, but are not as timely as the MEPS-IC.
5. Premiums and scope of benefits of coverage purchased directly from an insurance company or HMO.	--	Not available from population survey data. Requires information from insurance carriers or regulators.

¹ Indicators are for the non-institutionalized population, except MEPS-IC, which surveys employers.

² See Note 2 under Option 1.

-- Indicates that there is no good source, although limited information may be available (see Comments column).

Table 18. Broaden Existing Program Eligibility and/or Financing (Policy Option 6)

Selected Survey Indicators ¹	Best Source	Comments
1. Current health insurance coverage status.	WSPS	See Option 1, Indicators 1, 5 and 6 above.
2. Affordability of coverage.	WSPS	
3. Transitions/changes in eligibility for coverage (e.g., length of time unemployed, changes in income, changes in family structure).	SIPP	
4. Eligibility for public programs and potential expansions.	WSPS	WSPS provides self-reported information about enrollment in existing programs (i.e., Medicaid, Basic Health Plan); and income, asset, and demographic information can be used to identify populations eligible for potential program expansions. For a variety of reasons, survey estimates will generally differ from actual program eligibility and enrollment statistics, so survey analyses of program expansions should be augmented with administrative data (for additional discussion, see <i>Estimates of Insurance Coverage by Source</i> above).
5. Knowledge of and attitudes toward enrolling in public programs (e.g., stigma).	--	Generally not available.

¹ Indicators are for the non-institutionalized population.

-- Indicates that there is no good source, although limited information may be available (see Comments column).

Discussion and Recommendations

A. What are the best current sources of survey data on health care coverage issues for meeting Washington's analytic needs?

Getting an accurate picture of the number of uninsured Washingtonians, where in the state they live, the affordability of coverage, and how individual differences relate to insurance coverage is a complex task. By their nature, surveys can address these issues only with some level of error, and no single survey can adequately address all of them. Nevertheless, the available survey data provide a rich resource for understanding the coverage problem and devising and targeting solutions. This section provides recommendations for the best sources of survey data to use for coverage profiling in Washington.

Recommended Population Survey Sources

Recommendation 1: Washington should use the Washington State Population Survey (WSPS) as its core population survey source for profiling the problem of the uninsured and analyzing policy options; other data sources should be used to fill gaps in the WSPS (e.g., the FHIS provides a comparable historical baseline for measures of coverage in the WSPS).

Although each of the surveys reviewed in this report has both unique and shared limitations, the Washington State Population Survey emerges as the most appropriate source for responding to many of the research questions of interest. Compared to other sources, the WSPS methodology has clear advantages, including:

- The comparatively large WSPS sample, which provides for estimates for sub-state geographic areas.
- The random-digit dialing sampling design, which significantly reduces bias and enhances the precision of state and sub-state estimates compared to the stratified multi-stage samples in surveys, such as the CPS, that are designed to represent multi-state regions and the nation as a whole.
- The accessibility of the WSPS data to Washington State analysts, including local area identifiers.
- The content of the WSPS, which is adequate for addressing key coverage profiling questions (although there are some important gaps, which are discussed below).
- The ongoing nature of the WSPS, which provides timely and frequent estimates. Other surveys sponsored by private foundations such as those sponsored by The Robert Wood Johnson Foundation have proved less dependable, and others such as the NSAF may also not be dependable or timely in the future.
- The state's ability to modify the survey to address specific research questions and policy options in the future.

Some population-based analyses require data not available in the WSPS. In the near-term, other sources can be used to supplement the WSPS. In the longer-term, modifications to future waves of the WSPS should be considered. Specific information not available in the WSPS include:

- Length of time uninsured. Public program options may require waiting periods of 6 to 12 months. Length of time uninsured is in the FHIS and other surveys.
- Asset information. Public program options may limit the level of assets that eligible persons hold. The FHIS or other surveys include this information.
- Coverage transitions. Analyzing strategies such as encouraging COBRA enrollment requires information about the number and characteristics of persons transitioning from coverage. It is not feasible to collect data on such transitions in state-based population surveys, but analysis of national or regional surveys such as MEPS-HC and SIPP can be helpful.
- Attitudes and values associated with electing coverage or not. Attitudes and values information can be useful for targeting strategies to encourage voluntary enrollment in coverage. There are no state-specific sources of such information.
- Number and characteristics of safety net and other program users. Understanding the number and characteristics of users of safety net providers or enrollees in other small programs (e.g., employer health insurance purchasing pool) can be helpful in targeting public subsidies and shaping other public policies. The WSPS does not include information about safety net users, but NSAF provides a good description of persons who use safety net facilities as a usual source of care. Information on attitudes toward using the safety net can also be helpful, but is generally not available. The WSPS includes participation information for programs such as Medicaid and Basic Health and other programs, but participation in small or demonstration initiatives by individuals or employers is not easily collected in surveys.

Although the FHIS and the NSAF may have slight advantages in certain respects (e.g., less bias, better characterization of the uninsured), the WSPS should still be considered the strongest source for state population estimates due to its large sample, timeliness, and accessibility. Recommendation 6, below, lists several changes to the WSPS that would further enhance its value compared to the FHIS and NSAF.

Recommendation 2: The CPS should be used to benchmark coverage in Washington with levels and trends in other states and the U.S. as a whole.

The Current Population Survey is the main national survey used to track the problem of the uninsured, and Washington should continue to use the CPS to compare the profile of its uninsured population to that of other states and the nation as a whole. As well, the CPS is conducted every year and permits analysis of trends in coverage. Despite the limitations of the CPS noted in this report, it will remain the national standard for tracking the uninsured.

Recommended Employer Survey Sources

Recommendation 3: In the short-term, Washington should rely on the EHIS for detailed analyses, but in the future, state analysts should draw upon MEPS-IC using tables published by the federal government and by submitting special requests for additional analyses, as needed. Washington State could fund its own employer survey or use the MEPS-IC data center in Maryland; the former is costly, and the latter is logistically difficult.

There are two sources of information on employer health insurance characteristics (e.g., offer rates, employee take-up rates, premiums, scope of benefits and copayments, firm and worker characteristics, etc.), the MEPS-IC and the EHIS. These sources are largely comparable (although the EHIS includes more complete information about worker characteristics such as wage rates). The EHIS data are accessible to analysts outside the federal government, but there are no plans to repeat that survey in the future (the last version was completed for 1997). The MEPS-IC data are collected on an ongoing basis, but access to those data by analysts outside the federal government is quite limited. The cost and complexity of employer health insurance surveys preclude developing new affordable sources of information.

More satisfying longer-term solutions to meeting the need for employer health insurance data will be quite difficult. Sponsoring a replication of the EHIS would cost hundreds of thousands of dollars, but would provide rich and timely information that is accessible to Washington State analysts. The MEPS-IC provides an adequate sample of Washington employer health insurance information, but Census Bureau confidentiality rules preclude direct access to these data by Washington analysis, except on-site at the Census data center in Maryland. Gaining access to the Census data center requires a lengthy application process, further diminishing the potential timeliness of this information. Although it is conceptually feasible for Washington analysts to use the Census data center to conduct the type of statistical matching describe above for the EHIS, it is not likely that the Census Bureau would permit Washington analysts to use these data outside the confines of the Census data center.

Health Coverage Data Gaps

B. What are the priority gaps not filled by extant survey resources?

The analysis in this report identifies gaps in available data for analysis of health coverage problems and options in Washington. Specifically, four types of data gaps are summarized in Table 19.

Table 19. Major Health Coverage Data Gaps in Washington State

1. Cost of available coverage to the uninsured
No single population-based source of information is available on the cost of coverage available to selected uninsured groups.

2. Dynamics of coverage
Limited state-specific measures of the dynamics of coverage are available, such as measures of the duration of uninsurance, COBRA eligibility, or events associated with loss of coverage.
3. Reasons for uninsurance
Only limited information is available on reasons people go without coverage or businesses do not offer coverage. Data are available about perceived reasons and about family characteristics such as income and employment, and about employer characteristics (e.g., average payroll and number of workers). However, survey-based data are not available on consumer or business owner attitudes and preferences for coverage. Likewise, information about consumer knowledge about or willingness to participate, or reasons for reluctance to participate in public coverage or safety net programs are not collected in existing surveys.
4. Participation in new coverage models
Survey-based information is quite strong for identifying basic coverage information, but is not available for identifying participation in innovative new models. Actual or potential employer or individual participation in pooled purchasing arrangements or employer participation in government premium assistance programs are, for instance, not available in surveys.

C. How should data gaps be filled?

Some data gaps can be filled without major new investments or survey redesign; other steps will take longer. We focus here only on changes to and augmentations of existing data sources that can be achieved without major new expenditures.

Near-Term Means of Filling Data Gaps

Recommendation 4: Combine data from alternative sources to fill selected gaps in population surveys.

This recommendation involves employing statistical matching and imputation methods. These techniques will generally require the input of expert modelers. Suggested methods are outlined here, but designing the modeling and imputation strategies is beyond the scope of this report. Although there are many ways to impute missing variables, three methods with the most promise for filling in missing information in the WSPS are described here.

Matching. In the simplest case, information in the WSPS can be used to directly impute missing information. This method is the best for identifying the cost of coverage for persons eligible for publicly subsidized insurance programs. In this case, WSPS data on family structure and income can be used to match to eligibility rule information for public programs. Even this approach has some complications, however. Care must be taken to calculate income (or federal poverty level) thresholds for family units that would be eligible for programs, rather than for entire households covered in a WSPS interview. Likewise, care must be taken in calculating income levels, accounting only for sources of income that programs consider in eligibility determination (i.e., adjusting for income disregards). Despite these nuances, simple imputation can be accomplished fairly quickly and straightforwardly.

Statistical matching of survey records. In some cases, missing information comes in natural “clusters,” where an array of characteristics should be imputed as a group. In this case, statistical matching between surveys can be most valuable. This method is useful for imputing information about employer-provided insurance. Information about employer-sponsored health insurance, including employer and employee premium amounts, deductible and copayments levels, plan benefits, and degree of employee choice of plans, is best matched to population survey records as a cluster. As noted, these variables are important for assessing the affordability of coverage. Records from the EHIS can be matched to the WSPS using information on family structure (e.g., single, married, family), income or wage levels, industry of employment, and whether the employer offers coverage.

In the future, as the structure and cost of private health insurance changes, the EHIS will become increasingly obsolete. The MEPS-IC includes the data needed to match to the WSPS, but record-level data are not available to Washington analysts. Alternative methods can be developed where Washington analysts define “cells” by creating a matrix of demographic and employment characteristics (e.g., cells might be defined by unique combinations of family types, employer size, and industry), then average premium levels and other employer coverage characteristics for each cell would be matched to the WSPS by these characteristics. Washington would have to formally request that the federal government produce the data in the pre-determined cells. Analysis of the EHIS should be used to identify which limited set of family and employment characteristics would provide the best predictors of employer premiums. This procedure is not as good as direct matching to the EHIS for both practical and analytic reasons. First, the process of requesting MEPS-IC data is lengthy and complex. Second, cell-based matching does not preserve the natural variability in premiums, and this can bias subsequent statistical testing. Although more advanced methods of synthetic matching to MEPS-IC that better preserve the statistical properties of the data may be possible, they would be very complex.

Regression imputation. Imputing individual variables can be accomplished through statistical regression techniques. This method is useful for filling gaps in existing survey data on the length of uninsured spells. Data on the length of uninsured spells is not available on the current WSPS, but is available in other databases. The FHIS asked about the length of uninsured spells in progress at the time of the survey. Analyses of the effects of policies that require a minimum period without coverage prior to program eligibility would require duration of uninsured information. In this approach, statistical models might be developed to predict the probability of having been uninsured for the specified waiting period (e.g., six months) using a “donor” data set with duration information, such as the FHIS. Independent variables in the model should be common to both the WSPS and the “donor” database, and the dependent variable is unique to the donor. Data from the WSPS would then be processed through the predictive equation to create expected probabilities of each person having met the waiting period criterion. Other information related to the dynamics of coverage might also be imputed using regression methods. For each variable to be imputed, however, both donor and WSPS data must include adequate “predictor” variables. This limitation likely precludes imputation of some important variables, such as eligibility for COBRA coverage, which would require information about reasons for leaving employment that is not generally available.

Recommendation 5: Conduct targeted focus groups or interviews with selected populations.

Some information cannot be obtained from existing survey data sets. For example, as noted above, only very basic information is available from survey sources about why individuals lack coverage or why employers do not offer or fund coverage for their workers.

In the short-term, qualitative research methods can be used to fill this data gap. Specifically, targeted focus groups or semi-structured interviews are the best means of filling three specific data gaps:

- Attitudes toward and preferences for public and private coverage
- Barriers to participation in (individuals) or sponsorship of (employers) coverage
- Public and stakeholder opinion of selected new coverage policy options

Qualitative methods have been used successfully to measure some of these concepts in other locations for selected populations. Appendix E summarizes recent examples of such studies. Specifically, prior studies have highlighted that the hassle of applying for public coverage can be a significant barrier to enrollment, that some groups hold the view that health insurance is needed only to get through temporary periods of need, and that fear of using public benefits is high among immigrants.

Generally, focus groups are most useful where the interaction among members of a group can stimulate discussion and elicit thoughtful comments and opinions. Focus groups are most effective when their membership is more homogeneous, that is where members can discuss shared experiences. Focus groups should be recruited through existing, trusted organizations (although not exclusively through health care organizations, as these can influence who attends and what participants are willing to discuss), or at existing gatherings (e.g., for employer groups). It is often necessary to pay focus group members for their time or to defray expenses of attending. In some cases, individual, semi-structured (i.e., using open-ended discussion guides) interviews may be more feasible where it is not possible to convene groups.

Qualitative data can be helpful in understanding problems, especially understanding reasons for individual behavior. They are also valuable for vetting policy options and understanding the values groups bring to decisions about whether to support selected policy options. Qualitative data are generally not useful for establishing the population-based incidence of events (e.g., number of persons losing coverage over a given period) or prevalence of conditions (e.g., percent of the population uninsured). However, qualitative studies are valuable for establishing a foundation for writing closed-ended survey questions to be added to larger-scale surveys such as the WSPS, from which population-based estimates can be derived. Appendix F provides a preliminary plan for filling selected gaps that are identified in this report using qualitative methods. As the timing of the focus groups is critical to their effectiveness, these focus groups should occur somewhat later in the process, after developing needed information through profiling and analysis of options for access.

Longer-Term Means of Filling Data Gaps and Improving Data Quality

Recommendation 6: Consider modifications to future waves of the WSPS to fill selected gaps in survey content.

The WSPS provides a great breadth of information about health coverage in Washington. Nevertheless, data gaps remain. Some of the gaps cannot be addressed through population surveys and others may be too costly to address through surveys. Modest modifications to the WSPS can help to partially address two of the gaps identified in Table 19: dynamics of coverage and reasons for uninsurance. These are addressed below.

Dynamics of uninsurance. Measures related to dynamics of coverage, such as the duration of uninsured spells, identification of events leading to loss of coverage, and eligibility for COBRA coverage, are best measured through true longitudinal surveys (i.e., where the same individuals are interviewed repeatedly over time), a methodology that is so expensive and complex as to put it out of reach for most states. However, it may be advisable to collect some insurance history information in single-interview surveys such as the WSPS.

Care must be exercised in using retrospective insurance history questions, as respondent recall problems can be severe. The WSPS attempted but abandoned a coverage history question. The 1998 survey asked the number of months in 1997 that respondents were covered by a health plan, but this question was excluded from the 2000 WSPS because analysts did not believe responses to be valid.* We recommend that WSPS experiment with alternative formulations of history questions. Respondents should be walked through as simple a set of questions as possible, taxing memories the least. Recall periods should be as recent as possible and should be stated very clearly. Table 20 provides a sample coverage history question series.

Table 20. Suggested Coverage History Question Series

For respondents with coverage:
Q1. Was there any time in the past 12 months, that is since <MONTH/YEAR>, when you had <u>no</u> health coverage from any source? <If Yes to Q1> For how many months in the past year, that is since <MONTH/YEAR>, were you without coverage?
Q2. Alternative Q2. <If Yes to Q1> Were you without health coverage at any time in the <u>past six months</u> , that is since <MONTH/YEAR>?
For uninsured respondents:
Q3. Have you ever been covered by any type of health plan?
Q4. <If YES to Q3> When was the last time you were covered by any type of health plan? (CODE month and year)

This series has several potential advantages to the earlier WSPS coverage history question:

- The suggested questions are tailored based on the current coverage of the respondent, which will make them more salient.
- The suggested questions use a recall period that ends on the day of the survey, and thus is more recent.
- The questions insert dates as memory aides.
- The questions ask respondents for easier-to-recall answers. For instance, respondents are asked if they were without coverage in the prior year before being asked for the number of months without coverage. This is a cognitively simpler task. Asking for

* Personal communication with Harold Nelson, Washington State Office of Financial Management, February 12, 2002.

number of months is complex in any case, and the alternative formulation of Q2 may elicit more accurate responses (but yield less rich data).

If additional data collection resources become available, a longitudinal or panel component could be added to the WSPS. In a panel design a sample of respondents would be re-interviewed periodically. For instance, three re-interviews might be done at four-month intervals to capture information about changes in coverage over a year.

Reasons for uninsurance. The WSPS asks respondents to provide the “main reason you do not have health insurance?” As noted, open-ended questions like this one provide data of limited value (see Reasons People Go Without Coverage, above). Asking specific questions about attitudes, values or preferences may yield data of greater value. Focus group work should be used to test which coverage-related attitudes seem most important in coverage decisions among populations in Washington, but the following lists some potentially fruitful attitudes:

- Level of comfort using safety net services (i.e., free or discounted care, public clinics, etc.)
- Level of comfort using the emergency room for routine care
- Level of comfort enrolling in public health coverage
- Belief that physicians will treat even those who cannot afford to pay
- Belief that health coverage is only necessary during episodes of health care need
- Belief that it is easy to obtain coverage when it is needed
- Beliefs that mainstream medical care is often not effective or that self-treatment often is better
- Degree of dislike of using health care or taking medicines
- Belief that one’s health is mostly within one’s own control (e.g., through better health-related behavior)
- Belief that one’s health is a matter of fate (e.g., that illness is “God’s will”)
- Belief that one’s health is largely a matter of random chance
- Level of stoicism (e.g., “I only go to the doctor when things get bad.”)
- Perceived propensity to take risks with one’s health or finances

Once the most promising attitudes are identified, simple closed-ended questions can be crafted with scaled answers (e.g., strongly agree, somewhat agree, somewhat disagree, strongly disagree). One drawback of administering such questions in surveys like the WSPS is that they can only be asked of the respondent, and respondents may have systematically different characteristics than other household members. Respondents, however, provide answers that reasonably proxy the attitudes of all family members. The MEPS-

HC uses an alternative approach that is more thorough. In that survey, a brief self-administered paper-and-pencil questionnaire asking attitude questions is mailed to responding households for each adult member.

Measuring uninsurance. A theme throughout this report is that measuring health insurance coverage is difficult, and there is a lack of expert consensus on the best strategy. We believe that WSPS methods are sound, and should not be changed on the whole. Nevertheless, two points are worthy of consideration. First, the FHIS, then the NSAF, and more recently the CPS, adopted a question verifying lack of insurance coverage. In this scheme, a verification question is asked for each person in the household for whom no coverage is reported. This strategy reduces estimates of the uninsured by a small margin. Whether resulting estimates are more accurate is unknown. Nevertheless, with the adoption of these questions by the Census Bureau in the CPS, verification questions are becoming standard practice. The WSPS added such a verification question in 2002, and its continued use is encouraged.

Second, in instances where more than one source of health coverage is identified for an individual in the WSPS, a question about which is the “primary source” is asked. This question is of limited analytic value because individuals generally do not understand complex coordination-of-benefits provisions of health plans. Rather, it may be better for data analysts to impose a hierarchy of coverage, where employer-based is assumed to be the primary payer when such coverage is held, other private coverage is next, and so forth. If this strategy is taken, primary-source-of-coverage questions can be dropped from the WSPS questionnaire, saving a modest amount of interview time, or allowing more useful questions to be added.

Recommendation 7: Consider modifications to future waves of the WSPS to reduce potential biases from non-response and exclusion of households without telephones.

Improve WSPS response rate. There is consensus within the survey research industry that achieving high response rates is becoming more difficult, and as health reform has receded from the national agenda, fewer people are willing to respond to health-related surveys. Nevertheless, compared to other surveys of its type, the WSPS has a somewhat lower response rate and the rate for WSPS declined significantly between 1998 and 2000 (Table 6, above). Although there is no absolute minimum standard for an acceptable response rate, the 2000 rate was below 50 percent, which leaves considerable room for non-response bias (see Bias of Estimates above).

Strategies for improving response rates can be quite costly, but we believe that WSPS should devote more resources to increasing its rate. Three promising strategies for improving response include paying respondents monetary participation incentives (either initially, for answering machine messages, or for refusal conversion), continuing to use professional interviewers as opposed to student interviewers (especially for convincing reluctant respondents to participate), and lengthening the survey field period. Under the latter strategy, the number of times sampled households are contacted would be increased to 15 or more. Cases where potential respondents appear reluctant to participate but do not refuse to do so outright can be set aside for several weeks prior to re-contact. This approach is less irritating to respondents and may reduce contacts during times during which participation can be particularly difficult. Paying response incentives is costly (e.g., a \$25 response incentive for 7,000 respondents would cost over \$175,000 plus administrative costs), but most non-federal health surveys now do so. One cost-saving option is to pay incentives only to reluctant cases for “refusal conversion,” but this strategy can be risky if it becomes known that some respondents are being paid but others not. WSPS sponsors

may wish to conduct small-scale, randomized response rate experiments to determine the most cost-effective means of improving response rates.

Another strategy for improving response rates over time, which can also cost-effectively enhance the precision of estimates, is to re-interview respondents from one round of the WSPS in the next round. Persons interviewed once are generally considerably more willing to participate in a second round of the survey than are new contacts. The CTS and NSAF use this method. The re-interview group consists of households that stayed at the same address from one survey to the other. This sample cannot be used for longitudinal analysis because it is not representative of the wider population, and new households are also recruited to the sample in each wave. This strategy can be potentially cost-effective, but requires complex sampling design and data weighting strategies and advanced analysis software.

Reduce telephone non-coverage bias. The WSPS is conducted by telephone. As discussed above (see Bias of Estimates), households without phones have systematically different health-related characteristics than those with phones, which can lead to bias of survey estimates based only on telephone interviews. Many telephone surveys, including the NSAF and CTS, include small face-to-face interview samples for groups without telephones; this strategy may be effective in reducing bias from excluding households without telephones but it is expensive. An alternative, more cost-effective strategy, is to adjust survey estimates based on respondents' telephone coverage history. The adjustment is accomplished by adding one more question to the survey about telephone coverage history, then "up-weighting" households with recent gaps in telephone coverage. Since households without phones in the recent past are very much like households without telephones during survey data collection, this strategy effectively compensates for excluding the latter group from the survey sample. We therefore recommend that the WSPS should incorporate a telephone history adjustment strategy into future waves of the survey.

References

- Anderson, J.E., Nelson, D.E., & Wilson, R.W. (1998, September). Telephone coverage and measurement of health risk indicators: Data from the National Health Interview Survey. *American Journal of Public Health*, 88, pp. 1392-1395.
- Atrostic, B. K., Bates, N., Burt, G., Silberstein, A., & Winters, F. (Interagency Household Survey Nonresponse Group). (1999, October). *Non-response in federal household surveys: New measures and new insights*. Portland, OR: International Conference on Survey Nonresponse.
- Berk, M.L., Schur, C.L., & Cantor, J.C. (1995, Fall). Ability to Obtain Health Care: Recent Estimates from the Robert Wood Johnson Foundation National Access to Care Survey. *Health Affairs Vol. 14*, pp. 139-46.
- Cox, B. G. & Cohen, S.B. (1985). *Methodological Issues for Health Surveys*. New York: Marcel Dekker, Inc.
- Czajka, J.L. (1999, May). *Analysis of Children's Health Insurance Patterns: Findings from the SIPP*. Washington, DC: Mathematica Policy Research, Inc.
- Fowler, R. (1993). *Survey Research Methods*. (2nd ed.). Newbury Park, CA: Sage Publications.
- Freeman, H.E., Kiecolt, K.J., Nicholls, W.L.II, & Shanks, J.M. (1982). Telephone sampling bias in surveying disability. *Public Opinion Quarterly*, 46, pp. 392-407.
- Groves, R.M. (1989). *Survey Errors and Survey Costs*. New York: John Wiley & Sons.
- Judkins, D., Shapiro, G., Brick, J.M., Flores-Cervantes, I., Ferraro, D., Strickler, T., & Waksberg. (1999, March). *1997 NSAF Sample Design Report No. 2*. The Urban Institute. Can be retrieved at http://newfederalism.urban.org/nsaf/methodology_rpts/Methodology_2.pdf.
- Keeter, S. (1995). Estimating telephone noncoverage bias with a telephone survey. *Public Opinion Quarterly*, 59, pp. 196-217.
- Lewis, K., Ellwood, M., & Czajka, J. (1998, June). *Counting the Uninsured: A Review of the Literature*. The Urban Institute. Can be retrieved at <http://www.urban.org/UploadedPDF/occ8.pdf>.
- McAuliffe, W.E., Geller, S., LaBrie, R., Paletz, S., & Fournier, E. (1998, Spring). Are telephone surveys suitable for studying substance abuse? Cost, administration, coverage, and response rate issues. *Journal of Drug Issues* 28, pp. 455-482.
- Nelson, C.T. & Mills, R.J. (2001, August). The March CPS health insurance verification question and its effect on estimates of the uninsured. *Housing and Household Economic Statistics Division, U.S. Bureau of the Census*.
- Office of Financial Management, Washington State. Forecasting Division. (2001, September).
- Office of Financial Management, Washington State. (2001). Request for Proposals. *HRSA/OFM Planning Grant on Access and the Uninsured*. Olympia, WA: Office of Financial Management.
- Office of the Assistant Secretary of Planning and Evaluation, *United States Department of Health and Human Services*. (2001). Understanding Estimates of the Uninsured: Putting the Differences in Context.
- Short, P.F. (unpublished manuscript 2001). *Counting and characterizing the uninsured*.
- State Health Access Data Assistance Center. (2001a, March). The Current Population Survey (CPS) and State Health Insurance Coverage Estimates. *SHADAC Technical Reports Issue 1*. State Health Access Data Assistance Center. (2001b, June). State Health Insurance Coverage Estimates: Why State-Survey Estimates Differ from CPS. *SHADAC Technical Reports Issue Brief 3*.